



**FINAL  
ENVIRONMENTAL IMPACT STATEMENT  
March 2001**



**BROOKS CITY BASE PROJECT  
BROOKS AIR FORCE BASE, TEXAS**

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. <b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b>					
1. REPORT DATE (DD-MM-YYYY) 14-03-2001		2. REPORT TYPE Final		3. DATES COVERED (From - To) January 2000 - March 2001	
4. TITLE AND SUBTITLE Environmental Impact Statement (EIS) for the Brooks City  Base Project (BCBP), Brooks AFB, Texas				5a. CONTRACT NUMBER F41624-97-D-8018/0113	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) U.S Air Force, Earth Tech, various authors				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Air Force Center for Environmental Excellence                      HQ AFCEE/ECA Environmental Analysis                      3207 North Road Division    Brooks AFB, TX 78235-5363				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Brooks City Base Project                      311 HSW/CDB Office    2510 Kennedy Circle, Suite 116 Brooks AFB TX 78235-5120				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT  Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The EIS was prepared to analyze the potential environmental consequences of the Proposed Action, the Outgrant Alternative, and No-Action Alternative. The Proposed Action is a transfer/leaseback of Brooks AFB, Texas, property. Under the Outgrant Alternative, the Air Force would outgrant portions of the base but would retain ownership. The project is intended to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks AFB. The analysis examines the reasonably foreseeable environmental consequences of the Proposed Action and the Outgrant Alternative under three different land use scenarios. The land use scenarios represent varying approaches to implementing the BCBP in order to demonstrate the range of potential development and associated impacts that may occur under the BCBP. The No-Action Alternative would be a decision not to proceed with the BCBP.					
15. SUBJECT TERMS environmental impact analysis, transfer, lease, outgrant					
16. SECURITY CLASSIFICATION OF: U			17. LIMITATION OF ABSTRACT  UU	18. NUMBER OF PAGES  352	19a. NAME OF RESPONSIBLE PERSON John D. Clark
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code) (210) 536-3668

## INSTRUCTIONS FOR COMPLETING SF 298

**1. REPORT DATE.** Full publication date, including day, month, if available. Must cite at least the year and be Year 2000 compliant, e.g. 30-06-1998; xx-06-1998-, xx-xx-1998.

**2. REPORT TYPE.** State the type of report, such as final, technical, interim, memorandum, master's thesis, progress, quarterly, research, special, group study, etc.

**3. DATES COVERED.** Indicate the time during which the work was performed and the report was written, e.g., Jun 1997 - Jun 1998; 1-10 Jun 1996; May - Nov 1998; Nov 1998.

**4. TITLE.** Enter title and subtitle with volume number and part number, if applicable. On classified documents, enter the title classification in parentheses.

**Ba. CONTRACT NUMBER.** Enter all contract numbers as they appear in the report, e.g. F33615-86-C-5169.

**5b. GRANT NUMBER.** Enter all grant numbers as they appear in the report, e.g. AFOSR-82-1234.

**5c. PROGRAM ELEMENT NUMBER.** Enter all program element numbers as they appear in the report, e.g. 61101A.

**5d. PROJECT NUMBER.** Enter all project numbers as they appear in the report, e.g. 1F665702D1257; ILIR.

**5e. TASK NUMBER.** Enter all task numbers as they appear in the report, e.g. 05; RF0330201; T4112.

**5f. WORK UNIT NUMBER.** Enter all work unit numbers as they appear in the report, e.g. 001; AFAPL30480105.

**6. AUTHOR(S).** Enter name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. The form of entry is the last name, first name, middle initial, and additional qualifiers separated by commas, e.g. Smith, Richard, J, Jr.

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES).** Self-explanatory.

**8. PERFORMING ORGANIZATION REPORT NUMBER.**

Enter all unique alphanumeric report numbers assigned by the performing organization, e.g. BRL-1234; AFWL-TR-85-4017-Vol-21-PT-2.

**9. SPONSORING/MONITORING AGENCY NAME(S)**

**AND ADDRESS(ES).** Enter the name and address of the organization(s) financially responsible for and monitoring the work.

**10. SPONSOR/MONITOR'S ACRONYM(S).** Enter, if available, e.g. BRL, ARDEC, NADC.

**11. SPONSOR/MONITOR'S REPORT NUMBER(S).**

Enter report number as assigned by the sponsoring/monitoring agency, if available, e.g. BRL-TR-829; -21 5.

**12. DISTRIBUTION/AVAILABILITY STATEMENT.** Use agency-mandated availability statements to indicate the public availability or distribution limitations of the report. If additional limitations/ restrictions or special markings are indicated, follow agency authorization procedures, e.g. RD/FRD, PROPIN, ITAR, etc. Include copyright information.

**13. SUPPLEMENTARY NOTES.** Enter information not included elsewhere such as: prepared in cooperation with; translation of; report supersedes; old edition number, etc.

**14. ABSTRACT.** A brief (approximately 200 words) factual summary of the most significant information.

**15. SUBJECT TERMS.** Key words or phrases identifying major concepts in the report.

**16. SECURITY CLASSIFICATION.** Enter security classification in accordance with security classification regulations, e.g. U, C, S, etc. If this form contains classified information, stamp classification level on the top and bottom of this page.

**17. LIMITATION OF ABSTRACT.** This block must be completed to assign a distribution limitation to the abstract. Enter UU (Unclassified Unlimited) or SAR (Same as Report). An entry in this block is necessary if the abstract is to be limited.

**FINAL  
ENVIRONMENTAL IMPACT STATEMENT  
BROOKS CITY BASE PROJECT  
BROOKS AIR FORCE BASE, TEXAS**

**MARCH 2001**



## **COVER SHEET**

### **FINAL ENVIRONMENTAL IMPACT STATEMENT BROOKS CITY BASE PROJECT BROOKS AIR FORCE BASE, TEXAS**

- a. Lead Agency: U.S. Air Force
- b. Proposed Action: Implementation of the Brooks City Base Project (BCBP)
- c. Written comments and inquiries regarding this document should be directed to: Mr. Jonathan D. Farthing, Chief, Environmental Analysis Division, HQ AFCEE/ECA, 3207 North Road, Brooks Air Force Base, Texas, 78235-5363, (210) 536-3668.
- d. Report Designation: Final Environmental Impact Statement
- e. Abstract: In October 1999, Congress passed legislation (Fiscal Year 2000 Defense Appropriations Act, Section 8168, Public Law [P.L.] 106-79), known as the Base Efficiency Project, allowing the Air Force to conduct a demonstration project at Brooks Air Force Base (AFB). Subsequently, in July 2000, Congress passed legislation (Fiscal Year 2001, Defense Appropriations Act, Section 136, P.L. 106-246), which supercedes P.L. 106-79. For the purposes of this environmental impact statement (EIS), and for consistency with terminology recognized by the public, this project will be referred to as the BCBP. The project is intended to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks AFB. The purpose of the legislation is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less costly base support services, where available. The purpose of the BCBP analyzed in this EIS is to implement the legislation. The cost savings and increased efficiencies associated with the BCBP are needed in response to continuing Department of Defense manpower and budget constraints.

The EIS addresses the potential environmental impacts associated with the BCBP. The Proposed Action is a transfer/leaseback of Brooks AFB property. Alternatives include the Outgrant Alternative, under which the Air Force would outgrant portions of the base but would retain ownership; and the No-Action Alternative, under which the BCBP would not be implemented. The analysis examines the reasonably foreseeable environmental consequences of the Proposed Action and the Outgrant Alternative under three different land use scenarios. This methodology was employed because, although the transfer or outgrant of base property will have few, if any, direct effects, future use and control of property will create indirect effects. The land use scenarios represent varying approaches to implementing the BCBP in order to demonstrate the range of potential development and associated impacts that may occur under the BCBP.

This EIS includes analyses of potential impacts from proposed activities on local community, land use and aesthetics, transportation, utilities, hazardous materials management, solid and hazardous waste management, geology and soils, water resources, air quality, noise, biological resources, cultural resources, and environmental justice. Cultural resources could be adversely affected under the Proposed Action or Outgrant Alternative by transfer or lease to a nonfederal entity. Preservation covenants within property transaction documents or other methods could eliminate or reduce these effects to a nonadverse level. No other adverse impacts from the Proposed Action, Outgrant Alternative, or No-Action Alternative have been identified.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# SUMMARY

---

## PURPOSE OF AND NEED FOR ACTION

In October 1999, Congress passed legislation (Fiscal Year 2000 Defense Appropriations Act, Section 8168, Public Law [P.L.] 106-79) known as the Base Efficiency Project, allowing the Air Force to conduct a demonstration project at Brooks Air Force Base (AFB), Texas. Subsequently, in July 2000, Congress passed legislation (Fiscal Year 2001, Defense Appropriations Act, Section 136, P.L. 106-246) that supercedes P.L. 106-79. For the purposes of this environmental impact statement (EIS), and for consistency with terminology recognized by the public, this project will hereinafter be referred to as the Brooks City Base Project (BCBP). The project is intended to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks AFB. The purpose of the legislation is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less costly base support services, where available. The purpose of the BCBP analyzed in this EIS is to implement the legislation.

The cost savings and increased efficiencies associated with the BCBP are needed in response to continuing Department of Defense (DOD) manpower and budget constraints.

## ALTERNATIVES INCLUDING THE PROPOSED ACTION

The approach for the Proposed Action and alternatives in this EIS was based on the range of activities allowed by the 1999 Brooks City Base legislation. The Base Efficiency Project described in the legislation has the publicly stated goal to improve mission effectiveness while reducing the cost of installation support. While the legislation provides the Secretary of the Air Force with various means to accomplish its stated goals, the potential activities and decisions that would require National Environmental Policy Act (NEPA) analysis include the ability to transfer interest in Brooks AFB property to others through fee simple deed (conveyance) or outgrant (e.g., lease, permit, or other activity under which the Air Force retains ownership of the property). Therefore, these two choices form the basis of the Proposed Action and Outgrant Alternative to be analyzed. In addition, the No-Action Alternative, under which the BCBP would not be implemented, will also be analyzed.

Although the Air Force's primary NEPA-related decisions regarding the BCBP are related to conveyance or outgrant of the Brooks AFB property, these actions will have few, if any, environmental effects. However, the future use of Brooks AFB property may create environmental effects. This EIS, therefore, seeks to analyze reasonable land use scenarios to determine the potential environmental effects of Air Force decisions regarding implementation of the BCBP. Three land use scenarios to be considered in the impact analysis for the Proposed Action and the Outgrant Alternative have been developed and are analyzed under the Proposed

Action and Outgrant Alternative. Scenario A features development of mixed use, research and development park, traditional neighborhood development (TND), light industrial, retail/commercial, and multi-family residential land uses. Under Scenario B, less mixed use, research and development, TND, and light industrial would be included. No retail/commercial development would occur; however, retail and commercial land uses are identified in the description of mixed use development. A larger amount of multi-family residential acreage is envisioned. Scenario C features a greater amount of mixed use and multi-family residential and less TND either Scenario A or B. All three land use scenarios include varying amounts of acreage for public/open space uses.

These land use descriptions illustrate the best currently available information on future uses of Brooks AFB property. However, the scenarios were developed for analysis purposes only and do not represent specific plans for future development of the base property; they are not legally binding on the property recipient. Future development that may occur after property transfer would be constrained only by CoSA Master Planning or zoning regulations adopted for the area or by restrictions or covenants in the transfer documentation prepared between the Air Force and the property recipient.

**Proposed Action.** The Air Force proposes to convey (transfer real estate interest through fee simple deed) all or portions of the approximately 1,310 acres of base real property that can be legally conveyed, including facilities and infrastructure, to the City of San Antonio (CoSA) or other public or private entities where CoSA would maintain control of future development through its planning and zoning authority. The Air Force would continue to have responsibility for remediating active Installation Restoration Program (IRP) sites, including enforcement of institutional controls that may exist for these sites. Recipients and/or users of property where closed IRP sites are present would be responsible for enforcement of institutional controls. CoSA or other entities would develop transferred portions of the base property in a manner that is not inconsistent with current Brooks AFB operations. All base operating support (BOS) functions would initially remain under Air Force control. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection, and utility infrastructure support would ultimately be transferred to CoSA or other entities. Transferred property and facilities necessary to continue the Air Force mission would be leased back on an as-needed basis.

Retained Air Force properties are expected to have land uses consistent with the land use scenarios described below. Unlike transferred properties, the retained properties may require continuing Air Force BOS and would be subject to continuing Air Force decision-making authority (e.g., NEPA, Air Force real property instructions).

**Outgrant Alternative.** The Outgrant Alternative would involve outgranting the property to public or private entities consistent with the purpose of P.L. 106-79. For the purposes of this EIS, outgrants may include leases, licenses, permits, or rights-of-entry. Under this alternative, the Air Force would maintain continuing control and responsibility for the property and would have a continuing

responsibility to conduct NEPA analysis as necessary as individual leases are negotiated.

The Air Force would continue to have responsibility for remediation of active IRP sites, including enforcement of institutional controls that may exist for these sites. Recipients and/or users of property where closed IRP sites are present would be responsible for enforcement of institutional controls. CoSA or other public or private entities would develop outgranted portions of the base property in a manner that is not inconsistent with current Brooks AFB operations. All BOS functions would initially remain under Air Force control. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection, and utility infrastructure support could be transferred to CoSA or other entities, if feasible. For analysis purposes, Air Force organizations are, in general, expected to remain within the primary facilities they currently occupy.

**Land Use Scenarios.** Once land has been transferred or outgranted to CoSA or other public or private entity, vacant land could be developed through the construction of new facilities and infrastructure. Existing facilities would continue to be used by current Air Force activities, converted to other uses, or demolished. The three land use scenarios developed for analysis in this EIS represent varying approaches to implementation of the BCBP in order to demonstrate the range of potential development and associated impacts that may occur. In other words, the potential environmental impacts to be considered are based on the types and intensities of land use identified for each scenario, regardless of whether the Air Force retains ownership or conveys the property.

**No-Action Alternative.** Under the No-Action Alternative, the BCBP would not be implemented. Conveyance or outgrant of base property would not occur, and current operations on Brooks AFB would continue. The Air Force would continue to incur BOS and maintenance costs.

## SCOPE OF STUDY

The Notice of Intent to prepare an EIS for the BCBP was published in the Federal Register on June 16, 2000. Notification of public scoping was also made through local media, as well as through letters to federal, state, and local agencies and officials and interested groups and individuals. A public scoping meeting was held on July 12, 2000, to solicit comments and concerns from the general public on the future development of Brooks AFB property. The verbal and written comments and concerns received at this meeting, as well as information from other sources, were used to help determine the scope and direction of studies and analyses required to accomplish this EIS.

This EIS discusses the potential environmental impacts associated with implementation of the Proposed Action, Outgrant Alternative, and No-Action Alternative. In order to establish the context in which these environmental impacts may occur, potential changes in employment, income, and population, land use and aesthetics, transportation, and utility services are discussed as influencing factors. Issues related to current and future management of hazardous materials and solid and hazardous wastes are also discussed.

Potential impacts to the physical and natural environment are evaluated for geology and soils, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of the implementation of the BCBP, or as an indirect result of changes to the local community. Finally, this EIS discusses the potential environmental justice impacts to minority and low-income populations.

The baseline for this EIS against which the Proposed Action, Outgrant Alternative, and No-Action Alternative are analyzed consists of the current operating conditions, using 1998 to 2000 data.

## **SUMMARY OF ENVIRONMENTAL IMPACTS**

This EIS considers environmental impacts of the implementation of the BCBP and portrays three land use scenarios to cover reasonably foreseeable future uses of the property and facilities by others.

Under all alternatives, increases in employment, population, utilities, traffic (including roadway level of service), water resources, noise, and air emissions would be minimal compared to increases associated with projected regional growth. Potential impacts of the Proposed Action and alternatives for the 20-year analysis period are described in the following paragraphs.

Options for mitigating potential environmental impacts that might result from implementation of the Proposed Action and Outgrant Alternative are presented and discussed within each resource section. Because potential environmental impacts would result directly from the use of the property after transfer or outgrant, responsibility for implementation of these suggested mitigations would be borne primarily by property recipients or users. In a few cases (e.g., wetlands, cultural resources protection), the Air Force could impose mitigation requirements on property recipients and/or users by deed covenants or lease restrictions. The remediation of sites under the IRP and other applicable regulatory programs is, and will continue to be, the responsibility of the Air Force. Mitigation suggestions for affected resource areas, where appropriate, are summarized along with the environmental impacts of the Proposed Action, Outgrant Alternative, and No-Action Alternative.

## **PROPOSED ACTION**

As noted above, three land use scenarios (Scenarios A, B, and C) were considered to address potential impacts associated with future use of base property. This methodology was employed because, although the transfer or outgrant of base property will have few, if any, direct effects, future use and control of property by others will create indirect effects. The land use scenarios represent varying approaches to implementing the BCBP in order to demonstrate the range of potential development and associated impacts that may occur under the BCBP.

**Local Community.** Implementation of the BCBP could result in an increase in employment, income, and population in the San Antonio Metropolitan Statistical

Area (MSA), which comprises Bexar, Comal, Guadalupe, and Wilson counties. Scenario A is expected to generate a total of 11,083 additional direct jobs by 2020. The additional direct and indirect employment associated with Scenario A by 2020 is expected to be 20,280, an increase of 1.84 percent over the projected levels of employment under the No-Action Alternative. Under Scenario A, the direct and indirect employment is projected to increase the San Antonio MSA population by 24,011 by 2020, an increase of 1.17 percent over the projected population under the No-Action Alternative. A number of factors explain the low net population increase compared to the number of jobs generated. These include the phenomenon of two-income or two-job households, an increase in labor force participation rates in response to new employment opportunities that would slow down the need for immigrants to fill the jobs, and an immigration time lag in response to the new jobs not filled by existing residents of the MSA. Under Scenario A, income in the San Antonio MSA is projected to increase by \$1.366 billion, an increase of 1.54 percent over the projected levels under the No-Action Alternative. Increases to employment, income, and population would be less for Scenario B, but more for Scenario C than for Scenario A. Because project-related growth would represent only a small increase over the total projected regional growth, no significant impacts to employment, income, or population are expected from implementation of the Proposed Action.

Because no significant adverse impacts have been identified, no mitigation measures are required.

**Land Use and Aesthetics.** The land uses featured in this EIS would be compatible with surrounding existing and future planned land uses. The new development would maintain the architectural theme that currently exists on the base. Appropriate design and landscaping would be used to maintain the existing viewsheds that are present on base and off base. Because the land uses would be compatible with surrounding land uses and visual sensitivity would be retained, no significant impacts are anticipated.

Because no significant adverse impacts have been identified, no mitigation measures are required.

**Transportation.** The performance of a roadway segment is generally expressed in terms of level of service (LOS). The LOS scale ranges from A to F, based upon a volume-to-capacity ratio. LOS A, B, and C are considered good driving conditions with minor or tolerable delays by motorists. LOS D, E, and F are considered poor to completely jammed road situations. Under Scenario A of the Proposed Action, LOS on 7 of the 25 road segments analyzed would be degraded to LOS D or lower by 2020 because of the projected increase in traffic. Under Scenario B, LOS on 5 of the 25 road segments analyzed would be degraded to LOS D or lower by 2020. Under Scenario C, LOS on 6 of the 25 road segments analyzed would degrade to LOS D or lower by 2020.

Because there are only minimal adverse impacts to transportation associated with implementation of the Proposed Action, mitigation measures are not required. However, measures are available to the property recipient and/or users to bring the segments with unacceptable LOS to an acceptable LOS by 2020.

These measures include modifications to the local road network such as additional traffic lanes and intersection improvements. Carpool and vanpool programs, utilization of available mass transit, and flexible work schedules that allow employees to travel to work during less congested hours, are additional measures that could be implemented.

**Utilities.** Under the Proposed Action and alternatives, including the No-Action Alternative, projected region of influence (ROI) utility demands in 2020 would be greater than baseline demands for all utilities. This increase is associated with projected regional growth (No-Action Alternative). Under the Proposed Action, there would be an increased utility demand that would result from the development of Brooks AFB and from localized increases in utility consumption. Utility systems in the region would continue to operate within capacity, and no significant impacts are anticipated. Under all alternatives, increases in potable water usage resulting from development and increased population on Brooks AFB would be off-set by a recycled water distribution system to be constructed on base by the San Antonio Water System (SAWS). This recycled water distribution system is expected to reduce on-base potable water consumption by up to 0.25 million gallons per day.

**Hazardous Materials Management.** Under the Proposed Action, the quantity of hazardous materials utilized could increase due to new development. If an increase in hazardous materials usage occurs, an implementation plan and a Toxic Release Inventory may need to be prepared by the property recipient and/or user. Hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance would be managed in accordance with applicable regulations and laws by the property recipient and/or user. No significant impacts to hazardous materials management are anticipated under the Proposed Action.

Because no significant adverse impacts have been identified, no mitigation measures are required.

**Solid and Hazardous Waste Management.** By 2020, approximately 9,000 tons of solid waste are projected to be generated per day in the ROI. Solid waste generation would increase under all land use scenarios; however, these quantities would be only a small percentage of the total projected solid waste generation within the ROI, and are within the ROI's landfill capacity. Scenario C, which represents the scenario with the largest increase over baseline levels in solid waste generation, would generate 37 tons more solid waste over baseline conditions, 0.38 percent of the total ROI generation. No significant impacts are anticipated under the Proposed Action.

Because no significant adverse impacts have been identified, mitigation measures are not required.

Under the Proposed Action, the quantity of hazardous waste generated could increase due to new development. Hazardous waste management, asbestos, medical/biohazardous waste, and lead-based paint would be managed in



accordance with applicable regulations by the property recipient and/or user. No significant impacts are anticipated under the Proposed Action.

The Air Force is responsible for remediation of all active IRP sites on Brooks AFB and is committed to continue IRP activities. All development associated with the BCBP would occur on land that has been determined to pose no risk to human health or the environment. Property associated with active IRP sites and/or areas of concern (AOCs) that is not appropriate for development would be avoided and designated as open space. Development of some properties may be delayed or land use restrictions may be required for certain former IRP sites or AOCs. However, active coordination and planning between the Air Force and property recipient and/or user could minimize the impact to property transfer and land use restrictions that result from the presence of IRP sites or AOCs.

Because no significant adverse impacts have been identified for hazardous waste management, no mitigation measures are required.

**Geology and Soils.** The Proposed Action is unlikely to affect the local geology and sedimentation patterns at Brooks AFB. Structural movements or changes in seismicity are not anticipated. Effects on regional soils would be minimal and would result primarily from ground disturbance associated with facility construction, renovation, demolition, and infrastructure improvements. Short-term impacts could occur during ground-disturbing activities such as demolition of facilities, the removal of vegetation, or grading. Each developer disturbing 1 acre or more would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit and prepare a Storm Water Pollution Prevention Plan (SWPPP) before beginning construction. The NPDES permit and SWPPP would outline strict limitations designed to prevent soil erosion, and would minimize any impacts to soils and geology. Use of best management practices and controls would reduce the potential for erosion of disturbed soils.

Because no adverse geology and soils impacts have been identified, mitigation measures are not required.

**Water Resources.** The changes in impervious surface areas were assessed using a comparison of existing land uses and the projected land uses under Scenarios A, B, and C. It is expected that the development associated with the BCBP would cause an increase in impervious surfaces of approximately 10 percent. It is unlikely that such a small change would cause an increase in storm water runoff. In addition, because the project sites are already moderately developed, the projected additional construction is not expected to substantially alter the surface runoff. Proposed activities may be subject to NPDES and/or Texas Pollutant Discharge Elimination System (TPDES) permit requirements for storm water discharge during and after the construction period. Implementation of the NPDES, TPDES, and SWPPP requirements would protect water quality and should minimize any impacts to water resources. No new development would occur within delineated floodplains. Water demands for activities associated with the Proposed Action are expected to increase; however, the projected water demand has been considered by SAWS in planning for regional growth. A portion of the increased water demand on Brooks AFB would be off-

set by the construction of a recycled water distribution system for irrigation. No impacts to groundwater recharge, flow patterns, water supply, or floodplains are anticipated, and water quality is not expected to be degraded.

**Air Quality.** Under the Proposed Action, emissions from construction activities would create elevated short-term concentrations at receptors close to construction activities. Emissions may produce hazardous air pollutants (HAPs) in small quantities; however, these emissions would not increase the existing HAPs to a significant level. The potential to emit criteria pollutants (carbon monoxide, nitrogen oxide, particulate matter equal to or less than 10 microns in diameter, sulfur dioxide, and volatile organic compounds) would be less than the 250-ton per year U.S. Environmental Protection Agency threshold, and no significant impacts are anticipated.

Due to the uncertain status of the 8-hour ozone standard and the current attainment status of the area, this project is not currently subject to general conformity. However, if and when the area is redesignated as nonattainment, and the project becomes subject to general conformity, the impact of the project will be re-evaluated, as necessary, to demonstrate compliance with general conformity.

**Noise.** Noise levels under the Proposed Action would increase by 2020 due to the increased traffic volumes. Under the Proposed Action, estimated noise levels on sensitive receptors would be between 63 and 67 decibels, an increase of up to 3 decibels over the projected No-Action Alternative noise levels. No significant impacts are expected.

Because no significant adverse noise impacts have been identified, mitigation measures are not required.

**Biological Resources.** No federally or state-listed rare, threatened, or endangered plant or wildlife species are known to occur on Brooks AFB. Construction activities would create ground disturbance and short-term impacts to vegetation and wildlife. Wetlands present on Brooks AFB are within areas that would not be developed or disturbed under the BCBP. No significant impacts have been identified for biological resources.

Because no significant adverse biological resources impacts have been identified, mitigation measures are not required.

**Cultural Resources.** Brooks AFB has been surveyed for prehistoric and historic archaeological resources and no such resources were identified. Therefore, there are no prehistoric or historic archaeological properties likely to be affected under the Proposed Action. In addition, no traditional cultural properties have been identified within Brooks AFB. However, if such properties are uncovered during construction, they will be protected, and the appropriate state and federal agencies will be contacted.

Under the Proposed Action, the Air Force could transfer property that encompasses currently identified historic properties and properties that have

been determined to be eligible for listing in the National Register of Historic Places. In addition, a historic building evaluation, under the Man-in-Space historic context, is in progress and may identify additional historic properties. These properties may be historically significant for their association with medical research supporting the American Space Program. Each of the identified historic properties has the potential to be adversely affected by activities (e.g., renovation, demolition) associated with the Proposed Action. Once the historic building evaluation of facilities within the U.S. Air Force School of Aerospace Medicine (SAM) -100 series buildings area and the Veterinarian Science Support Colony is completed, any historic properties identified within those areas could also be adversely affected by these land uses. Potential adverse effects on historic properties have been considered during the preparation of this EIS. Potential adverse effects on any historic buildings and structures (e.g., demolition, renovation), either currently identified or identified as the result of the Man-in-Space historic building evaluation, would be reduced to nonadverse levels through measures agreed upon by the Air Force, the Texas State Historic Preservation Officer, and, as appropriate, the CoSA Historic Preservation Officer, the San Antonio Conservation Society, and the Advisory Council on Historic Preservation.

**Environmental Justice.** Based on the analysis presented in this EIS, no significant adverse impacts are anticipated from implementation of the BCBP. Because no significant adverse impacts were identified, no disproportionately high and adverse impacts to low-income and minority populations would be expected, and no environmental justice impacts are anticipated. Consequently, mitigation measures are not required.

## OUTGRANT ALTERNATIVE

Under the Outgrant Alternative, impacts would be similar to those described for the Proposed Action under Scenarios A, B, and C, respectively, for local community, land use and aesthetics, transportation, geology and soils, water resources, air quality, noise, biological resources, cultural resources, and environmental justice. The differences in impacts with implementation of the Outgrant Alternative with respect to hazardous materials management and solid and hazardous waste management are described below.

**Hazardous Materials Management.** Only DOD or a military member assigned to military family housing may store, treat, or dispose of toxic or hazardous materials on DOD installations, unless a statutory exception applies to a non-DOD entity's activities. In order to store hazardous materials on outgranted property, a property user would require a statutory exception from the Secretary of the Air Force.

Hazardous materials management, storage tanks, pesticides, radioactive materials, and ordnance would be managed in accordance with applicable regulations by the property outgrant recipient and/or user. Because management of hazardous materials would be in accordance with applicable regulations, no significant impacts are anticipated under the Outgrant Alternative.

Because no significant adverse hazardous materials impacts have been identified, mitigation measures are not required.

**Solid and Hazardous Waste Management.** Only DOD or a military member assigned to military family housing may store, treat, or dispose of toxic or hazardous materials on DOD installations, unless a statutory exception applies to a non-DOD entity's activities. In order to generate hazardous waste on outgranted property, a property user would require a statutory exception from the Secretary of the Air Force.

Hazardous waste management, asbestos, medical/biohazardous waste, and lead-based paint would be managed in accordance with applicable regulations by the property recipient and/or user. The Air Force would continue to be responsible for remediation of active IRP sites and AOCs. Because management of hazardous waste would be in accordance with applicable regulations, no significant impacts are anticipated under the Outgrant Alternative.

Because no significant adverse solid or hazardous waste management impacts have been identified, mitigation measures are not required.

## **NO-ACTION ALTERNATIVE**

Under the No-Action Alternative, no changes to land use and aesthetics, hazardous materials management, hazardous waste management, geology and soils, biological resources, cultural resources, or environmental justice are expected. Increases in employment, population, traffic, utility usage, solid waste, water resources, air quality, and noise would occur as a result of the projected regional growth for the San Antonio MSA. These resources are discussed further below.

**Local Community.** Under the No-Action Alternative, as a result of regional growth, employment in the San Antonio MSA is projected to increase to 1,003,290 by 2005, and to 1,104,518 in 2020, an increase of 10.1 percent. Employment levels at Brooks AFB are projected to stay constant at the present level of 3,844 civilian and military personnel from 2001 to 2020. Personal income in the San Antonio MSA is projected to increase to \$50.04 billion by 2005, and to \$88.5 billion by 2020, representing an increase of 76 percent between 2005 and 2020. The San Antonio MSA, which had an estimated population of 1.54 million in 1998, is projected to grow to 2.06 million by 2020, representing an increase of 18.8 percent. No significant impacts are expected under the No-Action Alternative.

**Transportation.** Under the No-Action Alternative, as a result of projected regional growth (unassociated with implementation of the Proposed Action or Outgrant Alternative), one roadway would be operating at LOS D or lower by 2020. New Braunfels Avenue, north of Pecan Valley Drive, would operate at LOS D compared to LOS C under baseline conditions. Because the BCBP would not be implemented, and no increase in base-related traffic over the 20-year analysis period is projected, all increases in traffic volumes and associated degradations in LOS on key road segments would be associated with regional growth. On-

base roadways would continue to operate at existing levels, and no impacts are expected.

**Utilities.** Projected regional utility demands in 2020 would be greater than baseline demands for all utilities. However, local utility conveyors have taken this growth into consideration, and all systems would continue to operate within capacity. No impacts are anticipated under the No-Action Alternative.

**Solid Waste Management.** Under the No-Action Alternative, solid waste generation would increase as a result of regional growth. Some reductions are anticipated as a result of recycling and source-reduction efforts. No impacts to solid waste are anticipated.

**Water Resources.** Under the No-Action Alternative, no new development associated with the BCBP would occur. No impacts to water resources are anticipated.

**Air Quality.** Under the No-Action Alternative, on-base operations would continue in compliance with applicable federal, state, and local regulations. Any increases in air emissions would be a result of regional growth. No air quality impacts are anticipated from the No-Action Alternative.

**Noise.** Under the No-Action Alternative, surface traffic noise in the vicinity of Brooks AFB would increase slightly as a result of projected growth in the region. No substantial increases in the noise levels in the adjacent residential areas are expected.

**THIS PAGE INTENTIONALLY LEFT BLANK**

## TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE OF AND NEED FOR ACTION .....	1-1
1.1 BACKGROUND .....	1-1
1.2 PURPOSE AND NEED .....	1-2
1.3 DECISIONS TO BE MADE .....	1-2
1.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS .....	1-3
1.4.1 Scoping Process .....	1-4
1.4.2 Public Comment Process .....	1-4
1.5 CHANGES FROM THE DEIS TO THE FEIS .....	1-4
1.6 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT .....	1-5
1.7 RELATED ENVIRONMENTAL DOCUMENTS .....	1-6
1.8 FEDERAL PERMITS AND LICENSES .....	1-6
2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION .....	2-1
2.1 INTRODUCTION .....	2-1
2.2 PROPOSED ACTION AND ALTERNATIVES .....	2-1
2.2.1 Proposed Action .....	2-1
2.2.2 Outgrant Alternative .....	2-2
2.2.3 No-Action Alternative .....	2-3
2.3 LAND USE SCENARIOS .....	2-3
2.3.1 Scenario A .....	2-5
2.3.2 Scenario B .....	2-12
2.3.3 Scenario C .....	2-16
2.4 OTHER FUTURE ACTIONS IN THE REGION .....	2-21
2.5 COMPARISON OF ENVIRONMENTAL IMPACTS .....	2-22
3.0 AFFECTED ENVIRONMENT .....	3-1
3.1 INTRODUCTION .....	3-1
3.2 LOCAL COMMUNITY .....	3-1
3.2.1 Community Setting .....	3-1
3.2.1.1 Employment and Income .....	3-3
3.2.1.2 Population .....	3-4
3.2.2 Land Use and Aesthetics .....	3-4
3.2.2.1 Land Use Plans and Regulations and Zoning .....	3-4
3.2.2.2 On-Base Land Use .....	3-8
3.2.2.3 Adjacent Land Use .....	3-10
3.2.2.4 Aesthetics .....	3-13
3.2.3 Transportation .....	3-14
3.2.3.1 Roadways .....	3-14
3.2.3.2 Other Transportation Modes .....	3-18
3.2.4 Utilities .....	3-20
3.2.4.1 Potable Water .....	3-22
3.2.4.2 Wastewater .....	3-23
3.2.4.3 Energy .....	3-24
3.3 HAZARDOUS MATERIALS MANAGEMENT .....	3-26
3.3.1 Hazardous Materials Management .....	3-26
3.3.2 Storage Tanks .....	3-27
3.3.3 Pesticide Usage .....	3-29
3.3.4 Radioactive Materials and Waste .....	3-29
3.3.5 Ordnance .....	3-30

## TABLE OF CONTENTS

	<u>Page</u>
3.4 SOLID AND HAZARDOUS WASTE MANAGEMENT .....	3-30
3.4.1 Solid Waste Management .....	3-30
3.4.2 Hazardous Waste Management.....	3-32
3.4.2.1 Hazardous Waste Management .....	3-33
3.4.2.2 Installation Restoration Program Sites.....	3-34
3.4.2.3 Asbestos .....	3-41
3.4.2.4 Medical/Biohazardous Waste.....	3-42
3.4.2.5 Lead-Based Paint.....	3-42
3.5 NATURAL ENVIRONMENT .....	3-43
3.5.1 Geology and Soils.....	3-43
3.5.1.1 Physiography.....	3-44
3.5.1.2 Geology .....	3-44
3.5.1.3 Natural Hazards .....	3-46
3.5.1.4 Soils.....	3-47
3.5.2 Water Resources.....	3-51
3.5.2.1 Surface Water .....	3-51
3.5.2.2 Groundwater.....	3-53
3.5.2.3 Water Quality .....	3-55
3.5.3 Air Quality .....	3-56
3.5.4 Noise .....	3-61
3.5.5 Biological Resources .....	3-61
3.5.5.1 Vegetation .....	3-61
3.5.5.2 Wildlife.....	3-62
3.5.5.3 Threatened and Endangered Species .....	3-62
3.5.5.4 Sensitive Habitats.....	3-63
3.5.6 Cultural Resources .....	3-63
3.5.6.1 Prehistoric and Historic Archaeological Resources .....	3-64
3.5.6.2 Historic Buildings and Structures .....	3-65
3.5.6.3 Traditional Resources .....	3-66
3.6 ENVIRONMENTAL JUSTICE.....	3-68
4.0 ENVIRONMENTAL CONSEQUENCES .....	4-1
4.1 INTRODUCTION .....	4-1
4.2 LOCAL COMMUNITY.....	4-2
4.2.1 Community Setting .....	4-2
4.2.1.1 Proposed Action .....	4-2
4.2.1.2 Outgrant Alternative .....	4-8
4.2.1.3 No-Action Alternative.....	4-8
4.2.2 Land Use and Aesthetics.....	4-9
4.2.2.1 Proposed Action .....	4-9
4.2.2.2 Outgrant Alternative .....	4-11
4.2.2.3 No-Action Alternative.....	4-11
4.2.3 Transportation .....	4-12
4.2.3.1 Proposed Action .....	4-12
4.2.3.2 Outgrant Alternative .....	4-18
4.2.3.3 No-Action Alternative.....	4-18
4.2.4 Utilities .....	4-18
4.2.4.1 Proposed Action .....	4-20
4.2.4.2 Outgrant Alternative .....	4-21
4.2.4.3 No-Action Alternative.....	4-22



## TABLE OF CONTENTS

	<u>Page</u>
4.3 HAZARDOUS MATERIALS MANAGEMENT .....	4-22
4.3.1 Proposed Action .....	4-22
4.3.1.1 Scenario A.....	4-22
4.3.1.2 Scenario B.....	4-24
4.3.1.3 Scenario C.....	4-24
4.3.2 Outgrant Alternative.....	4-24
4.3.2.1 Scenario A.....	4-24
4.3.2.2 Scenario B.....	4-25
4.3.2.3 Scenario C.....	4-25
4.3.3 No-Action Alternative.....	4-25
4.4 SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT .....	4-26
4.4.1 Solid Waste Management .....	4-26
4.4.1.1 Proposed Action .....	4-26
4.4.1.2 Outgrant Alternative .....	4-28
4.4.1.3 No-Action Alternative.....	4-28
4.4.2 Hazardous Waste Management.....	4-28
4.4.2.1 Proposed Action .....	4-29
4.4.2.2 Outgrant Alternative .....	4-37
4.4.2.3 No-Action Alternative.....	4-39
4.5 NATURAL ENVIRONMENT .....	4-40
4.5.1 Geology and Soils.....	4-40
4.5.1.1 Proposed Action .....	4-40
4.5.1.2 Outgrant Alternative .....	4-43
4.5.1.3 No-Action Alternative.....	4-43
4.5.2 Water Resources.....	4-43
4.5.2.1 Proposed Action .....	4-43
4.5.2.2 Outgrant Alternative .....	4-47
4.5.2.3 No-Action Alternative.....	4-47
4.5.3 Air Quality .....	4-47
4.5.3.1 Proposed Action .....	4-48
4.5.3.2 Outgrant Alternative .....	4-53
4.5.3.3 No-Action Alternative.....	4-54
4.5.4 Noise .....	4-54
4.5.4.1 Proposed Action .....	4-54
4.5.4.2 Outgrant Alternative .....	4-56
4.5.4.3 No-Action Alternative.....	4-56
4.5.5 Biological Resources .....	4-56
4.5.5.1 Proposed Action .....	4-56
4.5.5.2 Outgrant Alternative .....	4-58
4.5.5.3 No-Action Alternative.....	4-58
4.5.6 Cultural Resources .....	4-58
4.5.6.1 Proposed Action .....	4-59
4.5.6.2 Outgrant Alternative .....	4-61
4.5.6.3 No-Action Alternative.....	4-62
4.6 ENVIRONMENTAL JUSTICE.....	4-62

## TABLE OF CONTENTS (Continued)

	<u>Page</u>
5.0 CONSULTATION AND COORDINATION.....	5-1
6.0 LIST OF PREPARERS AND CONTRIBUTORS .....	6-1
7.0 REFERENCES .....	7-1
8.0 INDEX.....	8-1
9.0 PUBLIC COMMENTS AND RESPONSES.....	9-1

### APPENDICES

- A - Glossary of Terms, Acronyms, and Abbreviations
- B - Memorandum of Understanding between Brooks Air Force Base and the City of San Antonio
- C - Air Force Concept Approval Letter
- D - Public Laws
- E - Notice of Intent
- F - Final Environmental Impact Statement Mailing List
- G - Methods of Analysis
- H - Population, Employment, and Income Backup Data
- I - Agency Letters and Certifications

## LIST OF TABLES

	<u>Page</u>
1.8-1 Federal Permits and Licenses Potentially Required for Implementing the Brooks City Base Project .....	1-7
2.3-1 Land Use Acreage - Scenario A .....	2-5
2.3-2 New Facility Construction (square feet) - Scenario A .....	2-10
2.3-3 Acres Disturbed - Scenario A .....	2-10
2.3-4 On-Site Employment and Population - Scenario A .....	2-11
2.3-5 On-Site Utility Usage - Scenario A .....	2-12
2.3-6 Land Use Acreage - Scenario B .....	2-12
2.3-7 New Facility Construction (square feet) - Scenario B .....	2-15
2.3-8 Acres Disturbed - Scenario B .....	2-15
2.3-9 On-Site Employment and Population - Scenario B .....	2-16
2.3-10 On-Site Utility Usage - Scenario B .....	2-17
2.3-11 Land Use Acreage - Scenario C .....	2-19
2.3-12 New Facility Construction (square feet) - Scenario C .....	2-19
2.3-13 Acres Disturbed - Scenario C .....	2-20
2.3-14 On-Site Employment and Population - Scenario C .....	2-20
2.3-15 On-Site Utility Usage - Scenario C .....	2-21
2.5-1 Summary of Influencing Factors for Proposed Action and Outgrant Alternative (2020) .....	2-23
2.5-2 Summary of Potential Environmental Impacts from the Proposed Action and Alternatives (2020) .....	2-24
3.2-1 On-Base Land Use .....	3-10
3.2-2 Road Transportation Levels of Service .....	3-16
3.2-3 Peak-Hour Traffic Volumes and LOS on Key Roads .....	3-19
3.2-4 Afternoon Peak-Hour Traffic Volumes and LOS on Key Roads - Brooks AFB .....	3-22
3.3-1 Aboveground Storage Tanks .....	3-28
3.3-2 Oil/Water Separators .....	3-28
3.4-1 Brooks AFB Annual Solid Waste Generation, 1997-1999 .....	3-31
3.4-2 Annual Solid Waste Generation, 1996-1998 (tons per year) .....	3-32
3.4-3 Summary of IRP Sites and AOCs .....	3-36
3.5-1 Soil Properties and Use Suitabilities - Brooks AFB .....	3-49
3.5-2 National and Texas Ambient Air Quality Standards .....	3-57
3.5-3 Baseline Emission Inventory, Bexar County (tons per year) .....	3-58
3.5-4 Baseline Emission Inventory, Brooks AFB (tons per year) .....	3-58
4.2-1 Peak-Hour Traffic Volumes and LOS on Key Roads - Scenario A .....	4-13
4.2-2 Peak-Hour Traffic Volumes and LOS on Key Roads - Scenario B .....	4-14
4.2-3 Peak-Hour Traffic Volumes and LOS on Key Roads - Scenario C .....	4-15
4.2-4 Peak-Hour Traffic Volumes and LOS on Key Roads - No-Action Alternative .....	4-19
4.2-5 Projected Utility Consumption in the ROI .....	4-21
4.4-1 Projected Daily Solid Waste Generation and Disposal .....	4-27
4.4-2 IRP/AOCs within Land Use Scenarios A, B, and C .....	4-31
4.5-1 Construction Emissions for Criteria Pollutants (tons per year) .....	4-49
4.5-2 Operational Emissions for Criteria Pollutants - 2020 (tons per year) .....	4-50
4.5-3 Mobile Source Emissions - 2020 (tons per year) .....	4-51
4.5-4 Predicted Day-Night Average Noise Levels on Sensitive Receptors along Key Roadways .....	4-55

## LIST OF FIGURES

2.3-1	Land Use Scenario A.....	2-6
2.3-2	Land Use Scenario B.....	2-13
2.3-3	Land Use Scenario C .....	2-18
3.2-1	Regional Map.....	3-2
3.2-2	South Central San Antonio Community Plan Area .....	3-6
3.2-3	Future Economic Development Corridors .....	3-7
3.2-4	Comprehensive Economic Development Plan for South Central San Antonio .....	3-9
3.2-5	Existing On-Base Land Use .....	3-11
3.2-6	Adjacent Land Use .....	3-12
3.2-7	Regional and Local Road Systems.....	3-17
3.2-8	Base Roads, Brooks AFB, Texas.....	3-21
3.4-1	IRP and AOC Site Locations .....	3-40
3.5-1	Topography.....	3-45
3.5-2	Soil Types .....	3-48
3.5-3	Natural Resources Features.....	3-52
3.5-4	TNRCC Region XIII Air Basin.....	3-59
3.5-5	Known and Potential Historic Properties .....	3-67
4.4-1	IRP Sites/AOCs - Scenario A .....	4-33
4.4-2	IRP Sites/AOCs - Scenario B .....	4-36
4.4-3	IRP Sites/AOCs - Scenario C .....	4-38

## 1.0 PURPOSE OF AND NEED FOR ACTION

---

This environmental impact statement (EIS) examines the potential for impacts to the environment as a result of implementation of the Brooks City Base Project (BCBP). The BCBP would involve conveyance of real property at Brooks Air Force Base (AFB), Texas, to the City of San Antonio (CoSA) or other public or private entities, and leaseback of facilities necessary to meet Air Force mission requirements. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989). Appendix A provides a glossary of terms, acronyms, and abbreviations used in this document.

### 1.1 BACKGROUND

In 1996, the Greater San Antonio Chamber of Commerce, the South San Antonio Chamber of Commerce, and other community leaders began meeting with Brooks AFB officials to discuss ways the community could help Brooks AFB reduce operating support costs and build partnerships. In late 1997, the Air Force announced it was embarking on an initiative it termed "City Base." In response to this initiative, Mayor Howard W. Peak appointed the Brooks Opportunities Task Force. The Task Force was chartered to meet with the Air Force and develop recommended actions for CoSA to pursue that would complement Air Force planning activities and recommendations.

In January 1998, a Memorandum of Understanding (MOU) was finalized between Brooks AFB and the City of San Antonio (Appendix B). The MOU established the basis for a partnership between the two parties to address their roles, responsibilities, goals, and objectives with regard to the future planning for Brooks AFB. The vision of both parties is to create a model base of efficiency within the Department of Defense (DOD), while providing a continued source of employment, economic well-being, and civic pride within the San Antonio community.

In August 1998, the Air Force initiated a Special Study to determine the true costs of operating Brooks AFB, identify opportunities to pursue both public-public and public-private partnerships, and to quantify savings the Air Force could realize from implementation of the City Base initiative. Additionally, the study identified statutory impediments to implementing the City Base concept and made recommendations for additional authorities needed by the Air Force to proceed. This Special Study was completed in January 1999 and forwarded to Congress in March 1999. The Brooks Opportunities Task Force played a significant role in promoting the Air Force Special Study and in working with key Congressional leaders to ensure Brooks AFB-specific legislation became a reality.

In mid-1999, legislation to provide the Secretary of the Air Force with the authority necessary for implementation of the City Base initiative was introduced as part of the National Defense Appropriations Act for fiscal year (FY) 2000.

On February 29, 2000, the Secretary of the Air Force signed a "Concept Approval Letter" (Appendix C) that addressed overall Air Force BCBP planning and direction in implementing the authorities provided under the FY 2000 legislation.

## **1.2 PURPOSE AND NEED**

In October 1999, Congress passed legislation (Fiscal Year 2000 Defense Appropriations Act, Section 8168, Public Law [P.L.] 106-79) (Appendix D), known as the Base Efficiency Project, allowing the Air Force to conduct a demonstration project at Brooks AFB. Subsequently, in July 2000, Congress passed legislation (Fiscal Year 2001, Defense Appropriations Act, Section 136, P.L. 106-246) (see Appendix D) that supercedes P.L. 106-79. For the purposes of this EIS, and for consistency with terminology recognized by the public, this project will hereinafter be referred to as the BCBP. The project is intended to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks AFB. The purpose of the legislation is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less costly base support services, where available. The authorities provided in this legislation took effect on June 15, 2000, and will expire on September 30, 2004. The purpose of the BCBP analyzed in this EIS is to implement the legislation.

The cost savings and increased efficiencies associated with the BCBP are needed in response to continuing DOD manpower and budget constraints.

## **1.3 DECISIONS TO BE MADE**

This EIS will provide information for interrelated decisions concerning implementation of the BCBP. The EIS will provide the decision maker and the public with the information required to understand the potential environmental consequences of future development of Brooks AFB property.

After considering the environmental information presented in the EIS, the Air Force will issue a Record of Decision (ROD) addressing implementation of the BCBP.

The EIS addresses the potential environmental impacts associated with the proposed BCBP. The Proposed Action is a transfer/leaseback of Brooks AFB property. Alternatives include Air Force outgrant of portions of the base, under which the Air Force would retain ownership; and the No-Action Alternative, under which the BCBP would not be implemented. The analysis examines the reasonably foreseeable environmental consequences of the Proposed Action and alternatives under several different land use scenarios. This methodology was employed because, although the transfer of base property will have few, if any, direct effects, future use and control of use by others will create indirect effects.

This EIS, therefore, seeks to analyze reasonable land use scenarios to determine the potential indirect environmental effects of Air Force decisions regarding implementation of the BCBP.

## **1.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS**

The NEPA established a national policy to protect the environment and ensure that federal agencies consider the environmental effects of actions in their decision making. The CEQ is authorized to oversee and recommend national policies to improve the quality of the environment and has published regulations that describe how the NEPA should be implemented. The CEQ regulations encourage federal agencies to develop and implement procedures that address the NEPA process in order to avoid or minimize adverse effects on the environment. Implementation of the NEPA as part of the Air Force planning and decision-making process is addressed within 32 CFR Part 989.

NEPA and the CEQ regulations provide guidance on the types of actions for which an EIS must be prepared. Once it has been determined that an EIS must be prepared, the proponent must publish a Notice of Intent (NOI) to prepare an EIS. This formal announcement signifies the beginning of the scoping period, during which major environmental issues to be addressed in the EIS are identified through internal Air Force review and study and public and agency input. A draft EIS (DEIS) is prepared, which includes the following:

- A statement of the purpose and need for the action
- A description of the Proposed Action and alternatives, including the No-Action Alternative
- A description of the environment that would be affected by the Proposed Action and alternatives
- A description of the potential environmental consequences of the Proposed Action and alternatives and potential mitigation measures.

The DEIS for the BCBP was filed with the U.S. Environmental Protection Agency (EPA) and will be circulated to the interested public and government agencies for a period of 45 days for review and comment. During this period, a public hearing will be held so that the proponent can summarize the findings of the analysis and receive input from the affected public. At the end of the review period, all substantive comments received must be addressed. A final EIS (FEIS) is produced that contains responses to comments, as well as changes to the document, if necessary.

The FEIS is then filed with the U.S. EPA and distributed in the same manner as the DEIS. Once the FEIS has been available for at least 30 days, the Air Force may publish its ROD for the action. A notice of availability for the FEIS and ROD will be published in the San Antonio Express-News upon completion of these documents.

#### **1.4.1 Scoping Process**

The scoping process identifies the significant environmental issues relevant to the future development of Brooks AFB property and provides an opportunity for public involvement in development of the EIS. The NOI (Appendix E) to prepare an EIS for the BCBP was published in the Federal Register on June 16, 2000.

Notification of public scoping was also made through publication of newspaper advertisements in the San Antonio Express-News on July 2, 7, and 11, 2000. In addition, public scoping notification was made through letters to federal, state, and local agencies and officials and interested groups and individuals.

A public scoping meeting was held on July 12, 2000, at Slattery Hall, 9006 Villamain Road, San Antonio, Texas, to solicit comments and concerns from the general public on the future development of Brooks AFB property. Approximately 40 people attended the meeting. Representatives of the Air Force presented an overview of the meeting objectives, agenda, and procedures, and described the process and purpose for the preparation of an EIS. These presentations were followed by the public comment portion of the meeting. Verbal and written comments received at the meeting, as well as NEPA requirements and information from previous Air Force projects, were used to determine the scope and direction of studies/analyses to accomplish this EIS.

#### **1.4.2 Public Comment Process**

The DEIS was made available for public review and comment between September and November 2000. Copies of the DEIS were made available for review in local libraries and provided to those requesting copies. At a public hearing held on October 25, 2000, the Air Force presented the findings of the DEIS and invited public comments. All comments were reviewed and addressed, when applicable, and have been included in their entirety in this document. Responses to comments offering new or changes to data and questions about the presentation of data are also included. Comments simply stating facts or opinions, although appreciated, did not require specific responses. Chapter 9.0, Public Comments and Responses, more thoroughly describes the comment and response process. Appendix F presents a listing of agencies and individuals who have received a copy of the FEIS.

### **1.5 CHANGES FROM THE DEIS TO THE FEIS**

The text of this EIS has been revised, where appropriate, to reflect concerns expressed in public comments. Based on comments received, sections of the EIS have been clarified, updated, and/or revised. The following list summarizes major revisions to the text:

- The text regarding the San Antonio Missions National Historical Park has been expanded in Sections 3.2.2 and 4.2.2, Land Use and Aesthetics, and 3.5.6 and 4.5.6, Cultural Resources.



- The text in Section 4.5.2, Water Resources, has been expanded to address measures that would be implemented to control surface water runoff and minimize impacts to the historic acequia system.

## **1.6 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT**

This EIS is organized into the following chapters and appendices: This chapter provides the purpose and need for the action. Chapter 2.0 provides a description of the Proposed Action and reasonable alternatives for implementation of the BCBP. It also briefly discusses alternatives eliminated from further consideration. Finally, Chapter 2.0 provides a comparative summary of the environmental effects of implementing each of the three land use scenarios under the Proposed Action and alternatives. Chapter 3.0 presents the affected environment under the baseline conditions of current installation operations, providing a basis for analyzing the impacts of the Proposed Action and alternatives. The results of the environmental analysis are presented in Chapter 4.0 and form the basis for the summary table at the end of Chapter 2.0. Individuals and organizations consulted during preparation of the EIS are listed in Chapter 5.0; Chapter 6.0 provides a list of the document's preparers; Chapter 7.0 contains a list of references; and Chapter 8.0 contains an index. Chapter 9.0 provides the public comments and Air Force responses to the DEIS.

The following appendices accompany this document:

- Appendix A - A glossary of terms, acronyms, and abbreviations used in this document
- Appendix B - Memorandum of Understanding
- Appendix C - Air Force Concept Approval Letter
- Appendix D - Public Laws
- Appendix E - The NOI to prepare this EIS
- Appendix F - A list of individuals and organizations who were sent a copy of the FEIS
- Appendix G - A description of the methods used to evaluate the impacts of implementing the BCBP
- Appendix H - Population, employment, and income backup data
- Appendix I - Agency letters and certifications.

## 1.7 RELATED ENVIRONMENTAL DOCUMENTS

In March 1999, the Draft Environmental Assessment for the Brooks City Base Concept, Brooks Air Force Base, Texas, was published. The document was circulated for a 30-day public review period and few public comments were received. However, the Air Force determined that insufficient information regarding the contemplated Proposed Action was available to finalize the environmental assessment (EA). In addition, although P.L. 106-79 had been proposed, it was not authorized until October 8, 1999. Therefore, although this EA was not finalized, relevant information from the EA has been used within this EIS to support the environmental analysis.

In addition, the following documents have been prepared separately for Brooks AFB. These documents were also used to provide supporting information for the environmental analysis.

- Basewide Environmental Baseline Survey, Brooks Air Force Base, Texas (1998)
- Final Environmental Assessment for Utility System Privatization, Brooks Air Force Base, Texas (1999)
- Air Force Materiel Command (AFMC) Special Study for Brooks Air Force Base (1999).

## 1.8 FEDERAL PERMITS AND LICENSES

Federal permits and licenses that would potentially be required for the BCBP are presented in Table 1.8-1. The actual permit requirements will be determined based upon actual development proposals. This table does not include state or local permits or licenses that may be required.

**Table 1.8-1. Federal Permits and Licenses Potentially Required for Implementing the Brooks City Base Project<sup>(a)</sup>**

Federal Permit or License	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit or License	Authority	Regulatory Agency
Air Emissions Permits	Owners or operators of a new, modified, or existing stationary source of regulated air pollutants.	CAA	TNRCC (as EPA-delegated authority)
NPDES permit	Discharge of pollutant from any point source into Waters of the United States.	Title 40 CFR Parts 123, 501, and 503 (under the terms of an MOA between U.S. EPA and TNRCC)	TNRCC (as EPA-delegated authority)
Hazardous waste treatment, storage, or disposal facility permit	Owners or operators of a new or existing hazardous waste treatment, storage, or disposal facility	RCRA as amended, Title 42 U.S.C. Sections 6901-6992k; Title 40 CFR Part 270	U.S. EPA, TNRCC

Note: (a) No federal entitlements have been identified.

CAA = Clean Air Act  
CFR = Code of Federal Regulations  
EPA = Environmental Protection Agency  
MOA = Memorandum of Agreement  
NPDES = National Pollutant Discharge Elimination System  
RCRA = Resource Conservation and Recovery Act  
TNRCC = Texas Natural Resource Conservation Commission  
U.S.C. = U.S. Code

**THIS PAGE INTENTIONALLY LEFT BLANK**

## **2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

---

### **2.1 INTRODUCTION**

This section describes the Proposed Action, one alternative (Outgrant Alternative) to the Proposed Action, and the No-Action Alternative. Land use scenarios applicable to the Proposed Action and the Outgrant Alternative are also included. The potential environmental impacts of the Proposed Action and Outgrant Alternative from implementation of the associated land use scenarios are summarized in Table 2.5-2, which can be found at the end of this chapter.

### **2.2 PROPOSED ACTION AND ALTERNATIVES**

The approach for the Proposed Action and alternatives in this EIS was based on the range of activities allowed by the Brooks City Base legislation. The Base Efficiency Project described in the legislation has the publicly stated goal to improve mission effectiveness while reducing the cost of installation support. While the legislation provides the Secretary of the Air Force with various means to accomplish its stated goals, the potential activities and decisions that would require NEPA analysis include the ability to transfer interest in Brooks AFB property to others through fee simple deed (conveyance) or outgrant (i.e., lease, permit, or other activity under which the Air Force retains ownership of the property). Therefore, these two choices form the basis of the Proposed Action and Outgrant Alternative to be analyzed. In addition, the No-Action Alternative, under which the BCBP would not be implemented, will also be analyzed. The Proposed Action and alternatives are described in Sections 2.2.1 through 2.2.3.

Although the Air Force's primary NEPA-related decisions regarding the BCBP are related to conveyance or outgrant of the Brooks AFB property, these actions will have few, if any, environmental effects. However, the future use of transferred Brooks AFB property may create environmental effects. This EIS, therefore, seeks to analyze reasonable land use scenarios to determine the potential environmental effects of Air Force decisions regarding implementation of the BCBP. Three land use scenarios to be considered in the impact analysis for the Proposed Action and the Outgrant Alternative are described in Section 2.3. These land use descriptions illustrate the best currently available information on future uses of Brooks AFB property. However, the scenarios were developed for analysis purposes only and do not represent specific plans for future development of the base property; they are not legally binding on the property recipient. Future development that may occur after property transfer would be constrained only by CoSA Master Planning or zoning regulations adopted for the area or by restrictions or covenants in the transfer documentation prepared between the Air Force and the property recipient.

#### **2.2.1 Proposed Action**

The Air Force proposes to convey (transfer real estate interest through fee simple deed) all or portions of the approximately 1,310 acres of base real

property that can be legally conveyed (some portions of the property affected by environmental contamination may be retained until clean-up solutions are in place), including facilities and infrastructure, to CoSA or other public or private entities. CoSA would maintain control of future development through its planning and zoning authority. The base real property includes 265 facilities and related infrastructure with a combined floor space of over 2.2 million square feet. The Air Force would continue to have responsibility for remediating active Installation Restoration Program (IRP) sites, including enforcement of institutional controls that may exist for these sites. Recipients and/or users of property where closed IRP sites are present would be responsible for enforcement of institutional controls. CoSA or other entity would develop transferred portions of the base property in a manner that is not inconsistent with current Brooks AFB operations. All base operating support (BOS) functions would initially remain under Air Force control. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection, and utility infrastructure support would ultimately be transferred to CoSA or other entities. This would allow the Air Force to reduce the BOS costs associated with owning the property, while allowing continuing use necessary to support its missions. Transferred property and facilities necessary to continue the Air Force mission would be leased back on an as-needed basis. For analysis purposes, Air Force organizations are, in general, expected to remain within the primary facilities they currently occupy. Operating leases of property/facilities could be granted to the Air Force for 20 years or longer at the discretion of the Secretary of the Air Force.

Retained Air Force properties are expected to have land uses consistent with the land use scenarios described in Section 2.3. Unlike transferred properties, the retained properties may require continuing Air Force BOS and would be subject to continuing Air Force decision-making authority (e.g., NEPA, Air Force real property instructions).

### **2.2.2 Outgrant Alternative**

The Outgrant Alternative would involve outgranting all or portions of the base property to public or private entities consistent with the purpose of P.L. 106-79. For the purposes of this EIS, outgrants may include leases, licenses, permits, or rights-of-entry. Under this alternative, the Air Force would maintain continuing control and responsibility for the property and would have a continuing responsibility to conduct NEPA analysis as necessary as individual leases are negotiated.

The Air Force would continue to have responsibility for remediating active IRP sites, including enforcement of institutional controls that may exist for these sites. Recipients and/or users of property where closed IRP sites are present would be responsible for enforcement of institutional controls. CoSA or other public or private entities would develop outgranted portions of the base property in a manner that is not inconsistent with current Brooks AFB operations. All BOS functions would initially remain under Air Force control. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection, and utility infrastructure support could be transferred to CoSA or other entities, if feasible. For analysis purposes, Air Force organizations are, in general, expected to

remain within the primary facilities they currently occupy. Outgrants of property/facilities could be granted by the Air Force for 20 years or longer at the discretion of the Secretary of the Air Force.

### **2.2.3 No-Action Alternative**

Under the No-Action Alternative, the BCBP would not be implemented. Conveyance or outgrant of base property would not occur, and current operations on Brooks AFB would continue. The Air Force would continue to incur BOS and maintenance costs.

Under the No-Action Alternative, access to the base would continue through the Main and Human Systems Wing (HSW) gates; no new access points would be required. Increases in on-base roadway usage and utility consumption above baseline conditions are not expected to occur under the No-Action Alternative.

## **2.3 LAND USE SCENARIOS**

Once land has been transferred or outgranted to CoSA or other public or private entity, vacant land could be developed by construction of new facilities and infrastructure. Existing facilities would continue to be used to support current Air Force activities, converted to support other uses, or demolished. The land use scenarios developed for analysis in this EIS represent varying approaches to implementation of the BCBP in order to demonstrate the range of potential development and associated impacts that may occur under the BCBP. In other words, the potential environmental impacts to be considered are based on the types and intensities of land use identified for each scenario whether the Air Force retains ownership or conveys the property. Each land use scenario description includes a map of the land uses identified for that scenario, as well as text descriptions of the types of activities anticipated within each land use. While not explicitly stated within each land use description, most current mission activities at the base are assumed to continue at existing levels for the duration of the 20-year analysis period. Although the 20-year analysis period is the generally accepted period for conducting an analysis for an EIS, Brooks AFB missions will continue until the Air Force is no longer in need of facilities or property to support these missions. Air Force BOS functions are expected to remain in place in the short term before transitioning to services provided by CoSA or other entities within 1 to 2 years of project implementation.

Development of reasonable land uses for analysis within the EIS was based on a number of factors including existing land and facility use, adjacent land use, compatibility with current and potential future missions, desires of the local community, and information on regional real estate markets and absorption rates. As a part of the planning process, a workshop was held at Brooks AFB on February 29 and March 1, 2000, to support development of the land use scenarios to be analyzed in this EIS. Representatives from the Air Force, CoSA, and other local agencies and organizations attended the workshop. The primary purpose of the workshop was to obtain consensus on the types of land uses expected to occur on Brooks AFB with implementation of the BCBP. Further details on the workshop are presented in Appendix G.

A Request for Information (RFI) was published in the Commerce Business Daily and provided to target audiences via trade journals and industry communiqués. The purpose of the RFI was to help the Air Force determine the feasibility of partnering with industry, academia, and other government agencies at Brooks AFB to enhance its aerospace medicine and environmental and occupational health mission. The base has physical and information resources and areas of domain expertise that are unique and that could have potential use and application beyond the base and the Air Force.

To date, several responses have been received to the RFI on partnership opportunities with mission elements at Brooks AFB. These responses are from small entrepreneurs, large, internationally known companies, and state universities that have educational programs directly related to mission elements at Brooks AFB. The mission organizations have reviewed and evaluated the responses and have initiated dialogue with potential mission partners.

In order to develop each land use scenario, planning assumptions were developed. These planning assumptions address potential future land uses and associated zoning, economic development, housing, community facilities, and transportation. Details regarding development of these assumptions are provided in Appendix G. Assumptions were made for the following:

- Employment and population changes arising from implementation of the different land use scenarios under the Proposed Action and Outgrant Alternative
- The proportion of ground disturbance anticipated for each land use category
- The transportation and utility effects of each scenario
- The anticipated phasing of various aspects of each scenario (as measured at 5, 10, and 20 years).

For the purposes of this analysis, it has been assumed that:

- Current (non-BOS) base activities would continue at existing levels for the 20-year analysis period
- 10 percent of the new development would occur within the first 5 years of project implementation
- 25 percent of the development would occur during the next 5 years
- The remaining 65 percent of development would occur in the last 10 years of project implementation.

The growth absorption rates are based on a number of factors, including:

- Analysis of annual absorption rates for office and industrial development in the greater San Antonio area



- The availability of similar land for development in the region
- Infrastructure or other land development constraints expected as a part of the BCBP development process. Further details on the methodology used in this EIS are presented in Appendix G.

Through application of these assumptions, quantitative figures have been generated for use in the analysis. Specific assumptions developed for individual scenarios are identified within the discussion of each land use scenario below.

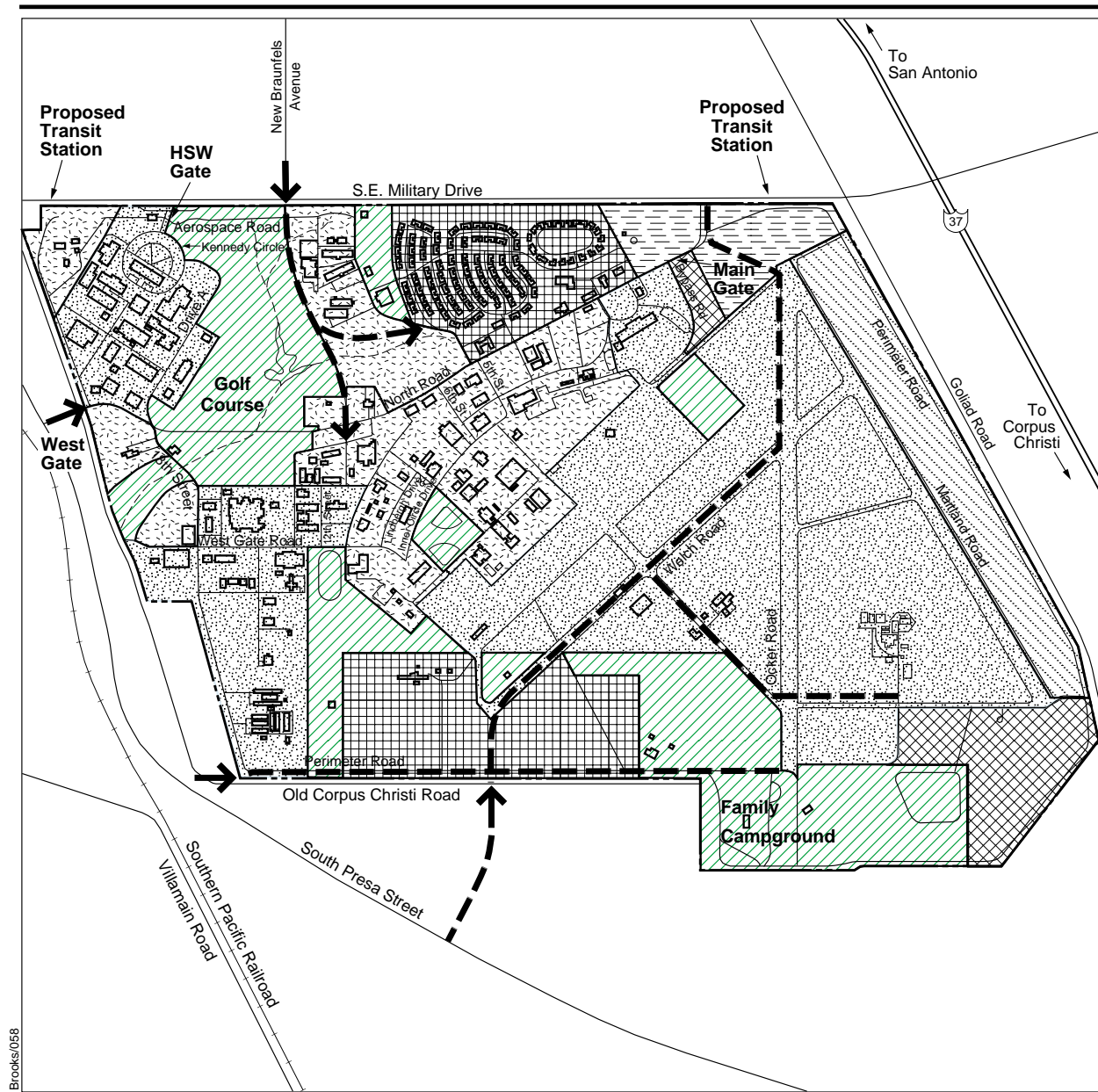
### 2.3.1 Scenario A

Land uses under Scenario A, CoSA's preferred land use scenario, are described in detail in the following paragraphs, and a summary is provided in Table 2.3-1. Figure 2.3-1 depicts the proposed land uses. The intent of this scenario is to promote a more diversified land use base by maximizing the potential for research and development expansion and residential development.

**Table 2.3-1. Land Use Acreage - Scenario A**

Land Use	Acres	Proposed Use(s)
Public/Open Space	245	Green space, recreational facilities, public schools, public works facilities
Mixed Use	212	Administrative offices, professional and personal services, community facilities (e.g., library, post office), transit station (bus stop, park-and-ride lot), hotel/conference center, restaurants, entertainment, residential (apartments, townhouses)
TND	147	Single-family detached houses, duplexes, townhouses, apartments
Multi-Family Residential	63	Multi-family residential units, condominiums, garden apartments
Light Industrial	96	Light manufacturing, warehousing, laboratories
Research and Development Park	506	Biotechnology research facilities, medical training/research facilities, medical clinics, telecommunications, educational/vocational facilities
Retail/Commercial	41	Drive-through restaurants, "big box" retail stores, personal and professional services, gas stations, convenience stores
<b>Total</b>	<b>1,310</b>	

TND = Traditional Neighborhood Development



#### EXPLANATION

- Brooks Air Force Base Boundary
- 37 Interstate Highway
- ← New Roadway Access Point
- New Roadway Extension

- Public/Open Space
- Mixed Use
- Light Industrial
- Research and Development Park
- Retail/Commercial

- Traditional Neighborhood Development
- Multi-Family Residential
- Open Space

#### Land Use Scenario A

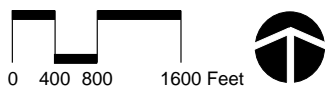


Figure 2.3-1

**Public/Open Space.** Under Scenario A, approximately 245 acres of land on Brooks AFB would remain as public/open space. These areas would include green space, an existing sewage pump station, and existing recreational facilities such as the golf course, Family Campground, and playing fields. Part of the existing base golf course along a possible new access route to New Braunfels Avenue has been identified under the Mixed Use land use under this scenario. Property designated for open space would also include environmentally sensitive areas such as wetlands, flood-prone areas, landfills, IRP sites, and drainage areas. Land areas outside the boundaries of the IRP sites could also include schools and other municipal facilities, as well as open space buffering between the base and residential development to the southeast.

**Mixed Use.** Scenario A includes four Mixed Use areas (212 acres). The Mixed Use land use includes a mix of commercial/retail and residential uses that have a higher density and intensity of uses than those that support base operations. These uses could implement a transit-oriented design (TOD) approach. TOD is based on land uses compatible with and served primarily by mass transit systems such as high-frequency bus service, train, or light rail. Uses are oriented toward pedestrian users and tend to be mixed together (e.g., housing over shops), more concentrated, of higher density and intensity (e.g., building up rather than out), and within easy walking distance (e.g., 1/4-mile maximum) of one another. Automobile-oriented uses would be discouraged. The Mixed Use land use would include attractive pedestrian environments; pedestrian/bike linkages to surrounding areas; and easy, attractive options for travel by foot, bike, or transit. These areas include:

- The northwest corner of the base
- The west-central portion of the base in an area bounded by North Road, 18th Street, West Gate Road, and the base boundary
- The central portion of the base
- The north-central portion of the base in an area between S.E. Military Drive, the residential area, North Road, and the proposed roadway extension of New Braunfels Avenue into the base.

The Mixed Use areas in the northwest corner of the base and at the West Gate could take advantage of the expected redevelopment potential of the South Presa Street corridor by locating a transit station (bus stop, park-and-ride lot) linkage at S.E. Military Drive on the northwest corner of the base (see Transportation in this section). The park in the northwest corner of the base and a portion of the golf course could be replaced by this land use. All four of the mixed use areas under this scenario are intended to be relatively compact “mini-neighborhoods” within the base. Land uses could include administrative offices; professional services; residential uses such as apartments, townhouses, and condominiums; support services; and retail uses for the residential population (both on base and nearby residences). The types of retail uses could include restaurants, delicatessens, coffee shops, dry cleaners, and gift shops. Additional uses could include hotel and entertainment uses. Pedestrian environments and pedestrian/bike linkages would be within easy walking distance of the Air Force

School of Aerospace Medicine (SAM) -100 series buildings area (the area containing Facilities 100 through 185 and bordered by Perimeter Road to the west, North Road to the south, 18th Street to the east, and Aerospace Road to the north) and recreational facilities.

Facilities that are currently utilized for the Base Exchange, commissary, medical clinic, and finance and personnel departments are situated within the area that would be designated as the Mixed Use Area.

**Traditional Neighborhood Development.** The Traditional Neighborhood Development (TND) land use can include narrow streets, reduced curb radii, alleys, and a mix of residential densities (single-family housing, duplexes, townhouses, and apartments). The TND land use includes two areas encompassing approximately 147 acres. The first consists of an area in the north portion of the base that includes the existing single-family housing (170 units). This housing is expected to be used for military personnel and their dependents throughout the 20-year analysis period. No new construction would occur within this area. Should the occupancy rate fall below an acceptable level, occupancy by nonmilitary tenants would be considered.

A second single-family residential area would be in the south-central part of the base. This area would connect with and be adjacent to the planned single-family residential development immediately south of the base boundary.

**Multi-Family Residential.** The Multi-Family Residential land use has been assigned two areas comprising 63 acres. The first would be in an area near the northeast corner of the base along Bypass Road, and the second in an area in the southeast corner of the base. Multi-family residential units (e.g., garden apartments, condominiums, multi-family detached homes) and the necessary infrastructure and recreational facilities could be constructed in these areas.

**Light Industrial.** An area of light industrial land use (96 acres) is featured on the east portion of the base between Maitland Road and the east base boundary (Goliad Road). The CoSA Fire Department Training Academy may be included within this area. The Fire Department Cadet Training Academy (approximately 50 acres) would include a classroom/administration facility, a driving track, a running track, and a clean burn facility.

Other general, light industrial uses that could be developed include light manufacturing, warehouse distribution facilities, printing plants, material testing laboratories, and assembly of data processing equipment and pre-manufactured goods. These light industrial uses include associated administrative offices and sales activities. This land use could include an open space area adjacent to Goliad Road that would function as a buffer to the adjacent land uses. This open space area currently contains a drainage ditch that will be upgraded by the CoSA, Public Works Department.

Heavy industrial land uses (e.g., power plants, dry cleaning plants, heavy metal plating, foundries, storage yards) that would require use of high volumes of hazardous materials, thus generating large amounts of hazardous waste or air

emissions, are not included in this land use and are not being considered for location at Brooks AFB.

**Research and Development Park.** A large portion of the base (506 acres) has been assigned to research and development land uses. This designation is intended to take advantage of the existing Brooks AFB science and education missions and attract complementary uses with particular focus on medical research and training, medical equipment and diagnostics, biotechnology, pharmaceutical research, laser technology, information technology, and environmental sciences. Facilities associated with these kinds of uses typically include research laboratories, training facilities, office buildings, clinics, educational facilities, and specialized “clean” production facilities. The intent of the Research and Development Park land use is to promote a clustered “campus style” of development for these types of uses to foster a concentrated research environment for potential tenants.

Organizations that currently utilize facilities within the area that would be designated as the Research and Development Park include the Air Force School of Aerospace Medicine, the Air Force Institute for Environmental Safety and Occupational Health Risk Analysis (AFIERA), the Air Force Research Laboratory's Directed Energy Laboratory, the 311th Human Systems Wing (311 HSW), and the Air Force Center for Environmental Excellence (AFCEE).

The existing pavements associated with the former airfield are assumed to remain substantially in place. The pavements would be available for use as streets, parking or storage areas, and facility foundations, if feasible, or for continued use as testing and educational/training areas. Currently, licenses for use of the former airfield are held by the Bexar County Sheriff's Department, Alamo Area Council of Governments, and the San Antonio Fire Department for driver training; the VIA Metropolitan Planning Organization (MPO) for parking new buses and driver training; the H.E. Butt Grocery Company (HEB) for truck driver training; and Long and Associates, Inc., for truck tire testing.

**Retail/Commercial.** Scenario A features a retail/commercial area (41 acres) in the northeast corner of the base. This is intended to approximate the “big box” type of retail commercial structures associated with traditional suburban development. The types of uses associated with “big box” development typically include large-scale supermarkets; home supply and hardware stores; electronic, appliance, and furniture retail outlets; automobile sales and repair; movie theatres; and other retail uses that draw customers from a wide area beyond the local neighborhood. These types of uses depend upon locations along major roadways with nearby freeway access. They typically range from 300,000 to 750,000 square feet of gross leasable area and require large parking lots to accommodate the primarily auto-oriented traffic. The existing static aircraft display would be relocated to another area on Brooks AFB or returned to the Air Force museum. Another transit station may be situated in the northeast corner of the base, close to the intersection of Goliad Road and S.E. Military Drive.

**Construction Activities.** The estimated amount of new facility construction through 2020 for each land use under Scenario A is provided in Table 2.3-2.

**Table 2.3-2. New Facility Construction (square feet) - Scenario A**

Land Use	2001-2005	2006-2010	2011-2020	Total
Public/Open Space	7,000	17,500	45,500	70,000
Mixed Use	283,500	709,000	1,843,500	2,836,000
TND	55,200	138,000	358,800	552,000
Multi-Family Residential	129,000	322,500	838,500	1,290,000
Light Industrial	73,600	184,000	478,400	736,000
Research and Development Park	148,300	370,900	964,400	1,483,600
Retail/Commercial	48,900	122,400	318,200	489,500
Total	745,500	1,864,300	4,847,300	7,457,100

TND = Traditional Neighborhood Development

Under Scenario A, up to 250,000 square feet of existing facility space could be demolished by 2004. The buildings to be demolished would generally include small, non-energy-efficient, wood-frame and other types of structures that were intended to be temporary or have exceeded their useful lifespan. This floorspace would likely be replaced by larger, more modern and efficient structures, as indicated in Table 2.3-2. It is not known at the current time the exact facility space that may be demolished. Specific plans for demolition would be determined by the property recipients and/or users subsequent to the publication of this EIS.

Table 2.3-3 summarizes the estimated acreage assumed to be disturbed by construction during each phase of development (e.g., building footprints, parking areas, roads, utilities system extensions, sidewalks).

**Table 2.3-3. Acres Disturbed - Scenario A**

Land Use	Acres Disturbed (by phase)			Total
	2001-2005	2006-2010	2011-2020	
Public/Open Space	2	5	13	20
Mixed Use	18	46	119	183
TND	7	17	45	69
Multi-Family Residential	6	16	41	63
Light Industrial	10	24	62	96
Research and Development Park	30	74	192	296
Retail/Commercial	4	10	27	41
Total	77	192	499	768

TND = Traditional Neighborhood Development

**Employment and Population.** Under Scenario A, construction of approximately 7.5 million square feet of new facility space by 2020 has been estimated. By 2020, activities under Scenario A are estimated to result in a total of 14,928 direct jobs (Table 2.3-4). This number incorporates a 3-percent BOS-related reduction in the existing employment of 3,844 at Brooks AFB. In addition, the on-base residential population is estimated to be 4,608 residents by 2020 (see Table 2.3-4).

**Transportation.** Under Scenario A, access to Brooks AFB would be provided through the three existing gates. The Main Gate is in the northeast portion of the

**Table 2.3-4. On-Site Employment and Population - Scenario A**

Land Use	Direct Employment <sup>(a)</sup>			On-Site Population <sup>(b)</sup>		
	2005	2010	2020	2005	2010	2020
Public/Open Space	3	9	25	0	0	0
Mixed Use	1,704	3,430	7,917	45	158	450
TND	0	0	0	841	1,123	1,908
Multi-Family Residential	0	0	0	225	768	2,250
Light Industrial	165	577	1,648	0	0	0
Research and Development Park	3,023	3,555	4,938	0	0	0
Retail/Commercial	58	153	400	0	0	0
<b>Total</b>	<b>4,953</b>	<b>7,724</b>	<b>14,928</b>	<b>1,091</b>	<b>2,068</b>	<b>4,608</b>

Notes: (a) Incorporates a 3-percent BOS-related reduction in the existing employment of 3,844 at Brooks AFB.

(b) Includes the current on-base population.

BOS = base operating support

TND = Traditional Neighborhood Development

base, off of S.E. Military Drive and west of Goliad Road. The HSW Gate is at Aerospace Road and S.E. Military Drive. The West Gate, which is currently closed, is on the west side of the base at North Road. For planning purposes, it has been assumed that this gate would be reopened. Three new access points would be associated with Scenario A (see Figure 2.3-1). An extension of New Braunfels Avenue would provide access to the Mixed Use area and the single-family residential areas in the north-central part of the base. A second access point would be added on the south-central portion of the base. A third access point would be at the southwest corner of the base connecting to Old Corpus Christi Road. Both access points on the south portion of the base would provide access from South Presa Street. The new roadways, shown on Figure 2.3-1, would provide access, which presently does not exist, from the west and south sides of the base. These two roadway extensions in the south and southwest parts of the base would provide access to residential areas and the southern portion of the Research and Development Park. Two transit stations (bus stop or park-and-ride lot) are included along the S.E. Military Drive corridor.

The redevelopment would emphasize the need for green, pedestrian/hike/bike linkages between the residential areas (both on-base and adjacent residential developments), Public/Open Spaces, the Mixed Use, and Research and Development Park uses.

Based on land use and employment projections, activities associated with Scenario A are estimated to generate up to 80,300 average daily vehicle trips by 2020. Average daily trips account for all vehicles entering and exiting each land use on the base over a 24-hour period and include vehicle trips that remain on Brooks AFB. The evening peak-hour volume (PHV) is estimated to be 8,700 vehicles.

**Utilities.** Estimated utility usage is based on land use, projected population and employment, building size, and historic regional utility use rates. Activities associated with Scenario A are estimated to generate the average utility demands shown in Table 2.3-5.

**Table 2.3-5. On-Site Utility Usage - Scenario A**

Utility	2005	2010	2020
Water (MGD)	0.61	0.82	1.36
Wastewater (MGD)	0.49	0.65	1.07
Solid waste (tons per day)	10.74	18.36	38.00
Electricity (MkWH per day)	0.22	0.35	0.71
Natural gas (MCF per day)	0.61	1.00	1.99

MGD = million gallons per day  
MkWH = million kilowatt hours  
MCF = million cubic feet

### 2.3.2 Scenario B

Scenario B land uses would be similar to Scenario A, with the exception of the variations within the land uses discussed below. A summary of the Scenario B land uses is provided in Table 2.3-6. Figure 2.3-2 depicts land uses associated with Scenario B.

**Table 2.3-6. Land Use Acreage - Scenario B**

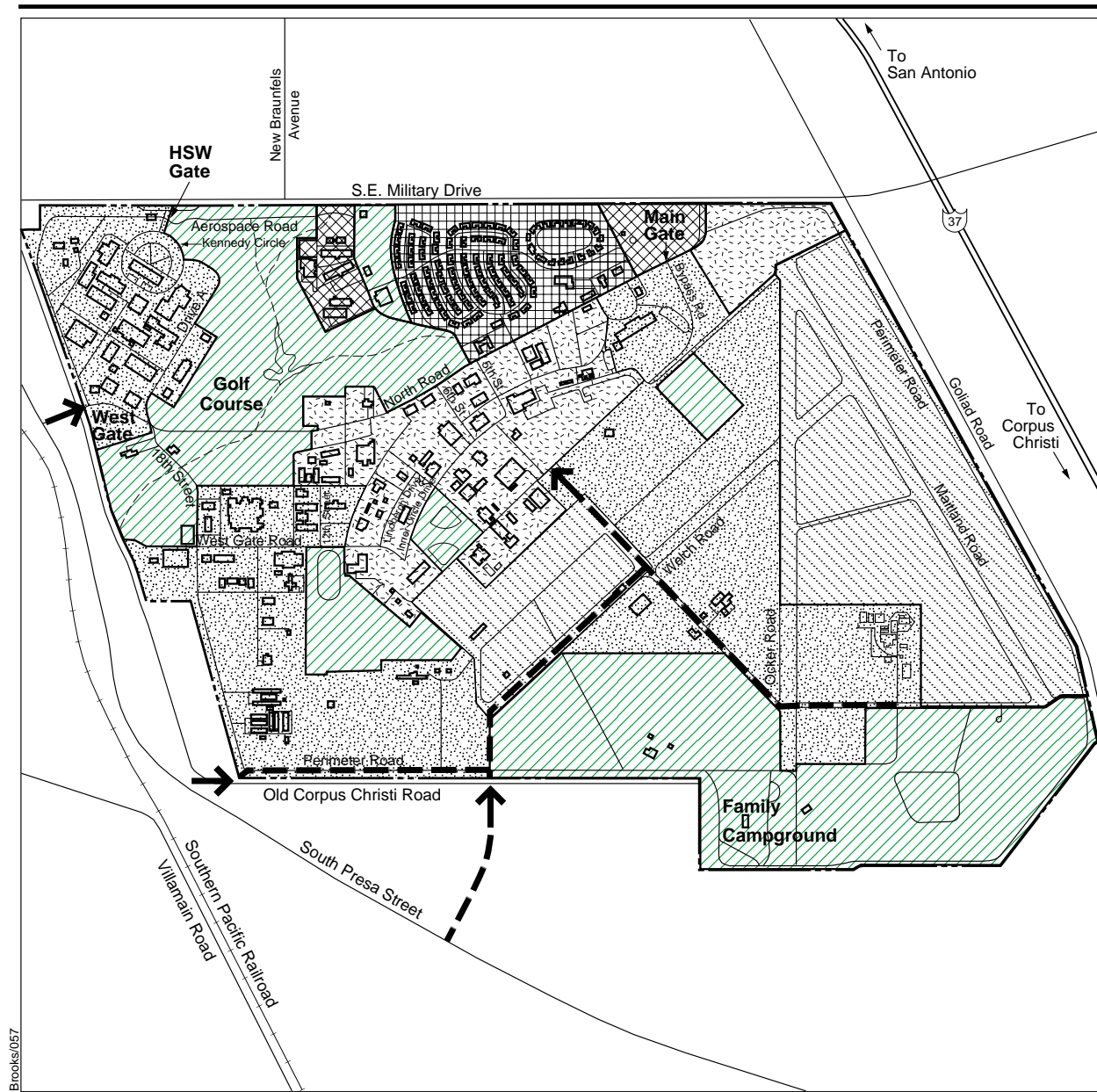
Land Use	Acres	Proposed Use(s)
Public/Open Space	362	Green space, recreational facilities, public schools, public works facilities
Mixed Use	163	Hotel/conference center, restaurants, entertainment, administrative offices, professional and personal services, transit station (bus stop, park-and-ride lot), residential (apartments, townhouses), community facilities (e.g., library, post office)
TND	78	Single-family detached houses, duplexes, townhouses, apartments
Multi-Family Residential	28	Multi-family residential units, condominiums, garden apartments
Light Industrial	214	Light manufacturing, warehousing, laboratories
Research and Development Park	465	Biotechnology research facilities, medical training/research facilities, medical clinics, telecommunications, educational/vocational facilities
Retail/Commercial	0	Drive-through restaurants, "big box" retail stores, personal and professional services, gas stations, convenience stores
<b>Total</b>	<b>1,310</b>	

TND = Traditional Neighborhood Development

**Public/Open Space.** Under Scenario B, approximately 362 acres of land on Brooks AFB would remain as public/open space. Land use and development would be similar to that described under Scenario A.

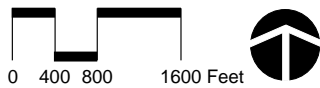
**Mixed Use.** Two Mixed Use areas (163 acres) are included as part of Scenario B. One area (27 acres) would be in the northeast corner of the base near the intersection of S.E. Military Drive and Goliad Road. It would serve as the gateway mixed use node for the base. This area would emphasize TOD and





#### EXPLANATION

- Brooks Air Force Base Boundary
- 37 Interstate Highway
- ← New Roadway Access Point
- New Roadway Extension



- Public/Open Space
- Mixed Use
- Light Industrial
- Research and Development Park
- Retail/Commercial\*
- Traditional Neighborhood Development
- Multi-Family Residential

\* Land use designation not applicable to this figure.

#### Land Use Scenario B

Figure 2.3-2

would comprise relatively intensely developed, mixed residential and commercial uses. This area could include a hotel and conference center, limited retail commercial development, restaurants, theaters, and offices.

The center of the base (136 acres) would be utilized for administrative offices; professional services; residential uses such as apartments, townhouses, and condominiums; support service; and retail uses for the residential population (both on base and nearby residences). The types of retail uses could include restaurants, delicatessens, coffee shops, dry cleaners, and gift shops. Additional uses could include hotel and entertainment uses. Pedestrian environments and pedestrian/bike linkages would be developed to connect other areas of the base.

**Traditional Neighborhood Development.** This land use encompasses approximately 78 acres bounded on the north by S.E. Military Drive, on the south by North Road, on the east by the proposed multi-family residential area, and on the west by 5th Street, and includes the existing single-family housing. The existing housing units are expected to be used for military personnel and their dependents throughout the 20-year analysis period. Should the occupancy rate fall below an acceptable level, occupancy by nonmilitary tenants would be considered. No new facility construction would occur within this area.

**Multi-Family Residential.** A Multi-Family Residential land uses (28 acres) would occur between the existing single-family residential area and the proposed Mixed Use area at the northeast corner of the base. This area is bounded by North Road to the east, First Street to the southwest, and the base boundary to the north. Multi-family residential units (e.g., garden apartments, condominiums, multi-family detached homes) and the necessary infrastructure and recreational facilities could be constructed in this area. The existing static aircraft display would be relocated to another area on Brooks AFB or returned to the Air Force Museum.

An area west of the single-family residential area has also been assigned to Multi-Family Residential land uses. This area includes existing units (e.g., dormitories, transient student lodging facilities) situated around the Brooks Club.

**Light Industrial.** Under Scenario B, the light industrial area would be expanded from 96 to 214 acres and include the two former runways and an area in the center of the base. This land use would exclude the Air Force Research Laboratory's Directed Energy Laboratory (which is part of the Research and Development Park land use) in the southeast portion of the base. Within the light industrial area, land use would be as described in Scenario A.

**Research and Development Park.** Under Scenario B, the remainder of the base (465 acres) has been assigned to research and development land uses. Potential uses would be as described under Scenario A. Under this scenario, more of the former runway areas in the underdeveloped southeast portion of the base would be devoted to light industrial (as opposed to research and development) than under Scenario A. If feasible, the existing pavements associated with the former airfield would be available for use as streets, parking

or storage areas, facility foundations, or for continued use as testing and educational/training areas, as described in Section 2.3.1 for Scenario A.

**Construction Activities.** Under Scenario B, construction of approximately 5 million square feet of new facility space by 2020 has been estimated. The estimated amount of new facility construction through 2020 for each land use under Scenario B is presented in Table 2.3-7. Approximately 83,600 square feet of existing facility space is expected to be demolished by 2004. It is not known at the current time the exact facility space that may be demolished. Specific plans for demolition would be determined by the property recipients and/or users subsequent to the publication of this EIS.

**Table 2.3-7. New Facility Construction (square feet) – Scenario B**

Land Use	2001-2005	2006-2010	2011-2020	Total
Public/Open Space	5,000	12,400	32,200	49,600
Mixed Use	150,300	375,800	977,000	1,503,100
TND	0	0	0	0
Multi-Family Residential	55,300	138,200	359,500	553,000
Light Industrial	164,100	410,200	1,066,600	1,640,900
Research and Development Park	133,200	333,000	865,700	1,331,900
Retail/Commercial	0	0	0	0
Total	507,900	1,269,600	3,301,000	5,078,500

TND = Traditional Neighborhood Development

Table 2.3-8 summarizes the estimated acreage assumed to be disturbed by construction during each phase of development (e.g., building footprints, parking areas, roads, utilities system extensions, sidewalks).

**Table 2.3-8. Acres Disturbed – Scenario B**

Land Use	Acres Disturbed (by phase)			Total
	2001-2005	2006-2010	2011-2020	
Public/Open Space	2	5	13	20
Mixed Use	13	31	82	126
TND	0	0	0	0
Multi-Family Residential	3	7	18	28
Light Industrial	21	54	139	214
Research and Development Park	26	65	168	259
Retail/Commercial	0	0	0	0
Total	65	162	420	647

TND = Traditional Neighborhood Development

**Employment and Population.** By 2020, activities under Scenario B are estimated to result in a total of up to 13,103 direct jobs (Table 2.3-9). In addition, on-base residential population is estimated to be 1,873 residents by 2020 (see Table 2.3-9).

**Table 2.3-9. On-Site Employment and Population – Scenario B**

Land Use	Direct Employment <sup>(a)</sup>			On-Site Population <sup>(b)</sup>		
	2005	2010	2020	2005	2010	2020
Public/Open Space	26	37	68	0	0	0
Mixed Use	1,400	2,317	4,703	21	74	210
TND	0	0	0	700	700	700
Multi-Family Residential	0	0	0	96	337	963
Light Industrial	367	1,286	3,674	0	0	0
Research and Development Park	2,995	3,457	4,658	0	0	0
Retail/Commercial	0	0	0	0	0	0
<b>Total</b>	<b>4,788</b>	<b>7,099</b>	<b>13,103</b>	<b>817</b>	<b>1,111</b>	<b>1,873</b>

Notes: (a) Incorporates a 3-percent BOS-related reduction in the existing employment of 3,844 at Brooks AFB.

(b) Includes the current on-base population.

BOS = base operating support

TND = Traditional Neighborhood Development

**Transportation.** Access to Brooks AFB would be provided through the three existing gates and two new access points (see Figure 2.3-2).

The two new access points would improve traffic circulation within the base and improve connectivity with the surrounding neighborhoods and arterial roadway network. One new access point would be constructed on the south side of the base connecting to South Presa Street. The second would be at the southwest corner of the base connecting to Old Corpus Christi Road. The new roadways shown on Figure 2.3-2 would provide access from the west and south sides of the base, which presently does not exist. The road extension from South Presa Street would provide a buffer between the light industrial land uses to the north and the public/open space uses to the south and southeast.

Based on land use and employment projections, activities associated with Scenario B are estimated to generate up to 54,800 average daily vehicle trips by 2020. Average daily trips account for all vehicles entering and exiting each land use on the base over a 24-hour period and include vehicle trips that remain on Brooks AFB. The evening PHV is estimated to be 6,800 vehicles.

**Utilities.** Estimated utility usage is based on land use, projected population and employment, building size, and historic regional utility use rates. Activities associated with Scenario B are estimated to generate the average utility demands shown in Table 2.3-10.

### 2.3.3 Scenario C

Scenario C would be similar to Scenarios A and B, with the exception of the variations within the land uses discussed below (Figure 2.3-3). Each land use within Scenario C is described in the following paragraphs, and a summary is provided in Table 2.3-11.

**Public/Open Space.** Under Scenario C, approximately 256 acres of land on Brooks AFB would remain as public/open space. Land use and development would be similar to that described under Scenario A. This land use could include a City-operated nursery operation, tree farm, and maintenance yard.

**Table 2.3-10. On-Site Utility Usage – Scenario B**

Utility	2005	2010	2020
Water (MGD)	0.59	0.73	1.11
Wastewater (MGD)	0.47	0.58	0.88
Solid waste (tons per day)	10.00	15.00	29.55
Electricity (MkWH per day)	0.20	0.29	0.53
Natural gas (MCF per day)	0.56	0.82	1.48

MGD = million gallons per day  
MkWH = million kilowatt hours  
MCF = million cubic feet

**Mixed Use.** The Mixed Use land uses (241 acres) would generally be the same as described under Scenarios A and B. However, the Mixed Use area would be expanded to include the area currently used for military family housing (MFH).

**TND.** Under Scenario C, the existing single-family housing units would be demolished and the area developed for Mixed Use activities. One new area of TND (69 acres) would be situated in the south-central part of the base, as under Scenario A. This area would connect with and be adjacent to the planned single-family residential development immediately south of the base boundary.

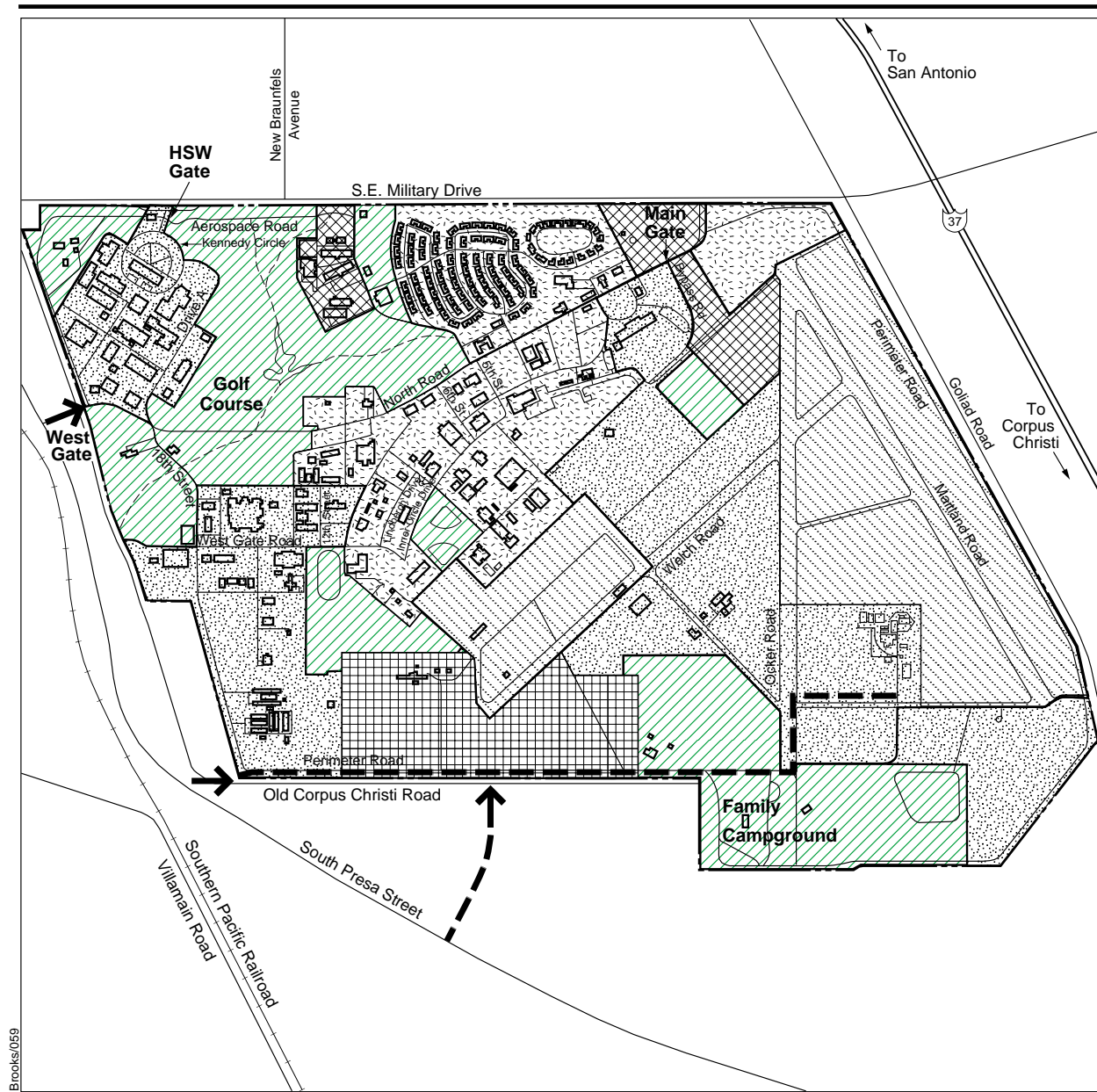
**Multi-Family Residential.** This scenario includes two areas (65 acres) of multi-family development. The first area comprises existing multi-family units west of the existing single-family residential area, as under Scenarios A and B. The other is in the northeast corner of the base and occupies a larger area than under Scenario B. The existing static aircraft display would be relocated to another area on Brooks AFB or returned to the Air Force Museum.

**Light Industrial.** Under Scenario C, the light industrial land use area (214 acres) would be the same as that described under Scenario B. An open space area adjacent to Goliad Road with an associated pedestrian walkway could be designed along Goliad Road as an open space amenity and buffer area.

**Research and Development Park.** Under Scenario C, a portion of the base (465 acres) has been assigned to research and development types of land uses, including the entire undeveloped southeast portion of the base, except for the IRP sites. Land uses would be similar to those described in Scenario A.

The existing pavements associated with the former airfield are assumed to remain substantially in place. The pavements would be available for use as streets, parking or storage areas, and facility foundations, if feasible, or for continued use as testing and educational/training areas, as described in Section 2.3.1 for Scenario A.

**Construction Activities.** Under Scenario C, construction of approximately 8.6 million square feet of new facility space by 2020 has been estimated. The



#### EXPLANATION

- Brooks Air Force Base Boundary
- 37 Interstate Highway
- ← New Roadway Access Point
- ← New Roadway Extension



- Public/Open Space
- Mixed Use
- Light Industrial
- Research and Development Park
- Retail/Commercial \*
- Traditional Neighborhood Development
- Multi-Family Residential

Note: Potential transit station along South Presa Street not shown on this figure.

\* Land use designation not applicable to this figure.

#### Land Use Scenario C

Figure 2.3-3

**Table 2.3-11. Land Use Acreage - Scenario C**

Land Use	Acres	Proposed Use(s)
Public/Open Space	256	Green space, recreational facilities, public schools, public works facilities
Mixed Use	241	Transit station (bus stop, park-and-ride lot), hotel/conference center, restaurants, entertainment, administrative offices, professional and personal services, residential (apartments, townhouses, community facilities (e.g., library, post office)
TND	69	Single-family detached houses, duplexes
Multi-Family Residential	65	Multi-family residential units, condominiums, garden apartments
Light Industrial	214	Light manufacturing, warehousing, laboratories
Research and Development Park	465	Biotechnology research facilities, medical training/research facilities, medical clinics, telecommunications, educational/vocational facilities
Retail/Commercial	0	Drive-through restaurants, "big box" retail stores, personal and professional services, gas stations, convenience stores
<b>Total</b>	<b>1,310</b>	

TND = Traditional Neighborhood Development

estimated amount of new facility construction through 2020 for each land use under Scenario C is provided in Table 2.3-12.

**Table 2.3-12. New Facility Construction (square feet) - Scenario C**

Land Use	2001-2005	2006-2010	2011-2020	Total
Public/Open Space	7,000	17,500	45,500	70,000
Mixed Use	362,400	906,000	2,355,600	3,624,000
TND	55,200	138,000	358,000	552,000
Multi-Family Residential	136,000	340,000	884,000	1,360,000
Light Industrial	164,100	410,200	1,066,600	1,640,900
Research and Development Park	134,000	336,000	873,000	1,343,000
Retail/Commercial	0	0	0	0
<b>Total</b>	<b>858,700</b>	<b>2,147,700</b>	<b>5,583,500</b>	<b>8,589,900</b>

TND = Traditional Neighborhood Development

Table 2.3-13 summarizes the estimated acreage assumed to be disturbed by construction during each phase of development (e.g., building footprints, parking areas, roads, utilities system extensions, sidewalks). Approximately 287,600 square feet of existing facility space, including the existing MFH units, is expected to be demolished by 2004. With the exception of the MFH, it is not known at the current time the exact facility space that may be demolished.

**Table 2.3-13. Acres Disturbed - Scenario C**

Land Use	Acres Disturbed (by phase)			Total
	2001-2005	2006-2010	2011-2020	
Public/Open Space	2	5	13	20
Mixed Use	21	53	139	213
TND	7	17	45	69
Multi-Family Residential	7	16	42	65
Light Industrial	21	54	139	214
Research and Development Park	26	64	168	259
Retail/Commercial	0	0	0	0
<b>Total</b>	<b>84</b>	<b>209</b>	<b>547</b>	<b>840</b>

TND = Traditional Neighborhood Development

Specific plans for demolition would be determined by the property recipients and/or users subsequent to the publication of this EIS.

**Employment and Population.** By 2020, activities under Scenario C are estimated to result in a total of up to 18,177 direct jobs (Table 2.3-14). The total on-base residential population would be 4,483 residents (see Table 2.3-14).

**Table 2.3-14. On-Site Employment and Population – Scenario C**

Land Use	Direct Employment <sup>(a)</sup>			On-Site Population <sup>(b)</sup>		
	2005	2010	2020	2005	2010	2020
Public/Open Space	3	9	25	0	0	0
Mixed Use	1,926	4,119	9,820	90	315	900
TND	0	0	0	121	423	1,208
Multi-Family Residential	0	0	0	238	831	2,375
Light Industrial	367	1,286	3,674	0	0	0
Research and Development Park	2,980	3,446	4,658	0	0	0
Retail/Commercial	0	0	0	0	0	0
<b>Total</b>	<b>5,276</b>	<b>8,860</b>	<b>18,177</b>	<b>448</b>	<b>1,569</b>	<b>4,483</b>

Notes: (a) Incorporates a 3-percent BOS-related reduction in the existing employment at Brooks AFB.

(b) Includes a reduction in the current on-base population.

BOS = base operating support

TND = Traditional Neighborhood Development

**Transportation.** Base access under this scenario would be as described in Scenario B. Transit stations could be situated at off-base locations along South Presa Street.

Based on land use and employment projections, activities associated with Scenario C are estimated to generate up to 65,400 average daily vehicle trips by 2020. Average daily trips account for all vehicles entering and exiting each land use on the base over a 24-hour period and include vehicle trips that remain on Brooks AFB. The evening PHV is estimated to be 7,550 vehicles.

**Utilities.** Estimated utility usage is based on land use, projected population and employment, building size, and historic regional utility use rates. Activities associated with Scenario C are estimated to generate the average utility demands shown in Table 2.3-15.



**Table 2.3-15. On-Site Utility Usage - Scenario C**

Utility	2005	2010	2020
Water (MGD)	0.64	0.90	1.60
Wastewater (MGD)	0.50	0.71	1.26
Solid waste (tons per day)	11.00	20.00	43.53
Electricity (MkWH per day)	0.22	0.38	0.78
Natural gas (MCF per day)	0.63	1.06	2.17

MGD = million gallons per day  
MkWH = million kilowatt hours  
MCF = million cubic feet

## 2.4 OTHER FUTURE ACTIONS IN THE REGION

Other actions on base and within the region were evaluated to determine whether cumulative environmental impacts could result from implementation of the BCBP in conjunction with other past, present, or reasonably foreseeable future actions. Several future plans have been identified and are described below. A more detailed description of land use plans and development is provided in Section 3.2.2.1.

Brooks AFB has signed an agreement with the San Antonio Water System (SAWS) and City Public Service (CPS) to install a recycled, nonpotable water distribution system that will support industrial uses, including use of base chillers, and irrigation system requirements, including golf course irrigation. The system will be installed, owned, and operated by SAWS. The system will enter the base from two locations off S.E. Military Drive and will service two separate areas. One entry point for the recycled water distribution system will be in the northeast corner of the installation near the intersection of S.E. Military Drive and Goliad Road. The pipeline will run southeast along North Road to the intersection of North Road and 5th Street. At this intersection, the pipeline will turn south and connect to Building 578. This branch of the system will provide water to the cooling tower in Building 578 and will also provide water for irrigation of areas along the system's path, including the MFH area. The second entry point for the system will be at the installation boundary near the intersection of S.E. Military Drive and New Braunfels Avenue. From this entry point, the pipeline will parallel the base boundary to the northwest corner of the installation. The pipeline will then turn south, bordering the perimeter of the SAM-100 series buildings, and then turn southeast, traveling past Building 172 toward the golf course. This branch of the system will be used to provide water to the cooling plant at Building 172 and for irrigation, primarily of the golf course. When this system is fully operational in summer 2001, it is anticipated that the base's potable water consumption could decrease by as much as 50 percent due to the use of recycled water instead of potable water.

Development of up to 400 residential lots is planned just south of the southeast corner of Brooks AFB. There are currently approximately 150 homes in this area. The new development would occur in three phases. A "parade of homes" consisting of 23 model residences was constructed in December 1998. Two private developers plan to construct about 160 homes each by 2004. Currently, Goliad Road provides access to this area. When fully developed, the housing

area would be accessed from the south by South Presa Street by way of Siluria Road and from the east by Goliad Road.

New development has been proposed south of and adjacent to the southwest portion of the base and north of South Presa Street. This development is approximately 100 acres in size and would include construction of 300 single-family, affordable housing units at various lot sizes and densities, garden apartments/condominiums, a day care center, light commercial uses, soccer fields, and a park area. The plans for this development have been submitted to CoSA for review. The current plans include provisions for a future VIA Metropolitan Transit light rail station, as well as one new access point into Brooks AFB.

CoSA and the Federal Aviation Administration (FAA) have been working to expand the capabilities of Stinson Municipal Airport, which is situated west of the base. The proposal is to extend the existing runway approximately 150 feet to the east, thereby allowing more corporate jet aircraft to utilize the airport. An update to the Stinson Airport Master Plan is under way and it is anticipated to be completed in 1 year. The current noise contours are not expected to change substantially upon completion of the runway extension.

The San Antonio-Bexar County MPO has prepared the Metropolitan Transportation Plan Project List, which is the long-range plan for transportation improvement projects throughout the City of San Antonio. One project planned within the area surrounding Brooks AFB is implementation of the Mission Trails Project along S.E. Military Drive.

The CoSA Public Works Department has plans to improve the storm drainage along Goliad Road north of S.E. Military Drive. The storm drainage ditch south of S.E. Military Drive on Brooks AFB property lacks the capacity to handle increased flows from this project and is expected to require widening.

The VIA Metropolitan Transit proposal to construct a light rail transit system to serve San Antonio was a sales tax measure on the May 2000 ballot. Because the voters did not approve this measure, construction of the system is not currently anticipated, although this measure may be reintroduced at a later date.

## **2.5 COMPARISON OF ENVIRONMENTAL IMPACTS**

A summary comparison of influencing factors associated with the Proposed Action and Outgrant Alternative is provided in Table 2.5-1. Influencing factors are nonbiophysical elements such as population, employment, land use and aesthetics, transportation networks, and public utility systems. It should be noted that the range of potential development and employment gains indicate development that could occur if the BCBP were to be implemented.

A summary of the potential environmental impacts associated with implementation of the Proposed Action and alternatives is provided in Table 2.5-2. Each resource potentially affected by the Proposed Action and alternatives is listed; influencing factors are not included within this table. Impacts to the environment are described briefly in the summary and discussed in detail in Chapter 4.0.

**Table 2.5-1. Summary of Influencing Factors for Proposed Action and Outgrant  
Alternative (2020)**

Factor	Scenario A	Scenario B	Scenario C
Gross Square Footage	7,457,100	5,078,500	8,589,900
Ground Disturbance (acres)	768	647	840
Direct Employment	14,928	13,103	18,177
On-Site Population	4,608	1,873	4,483
Average Daily Trips	80,300	54,800	65,400
Potable Water Consumption (MGD)	1.36	1.11	1.60
Wastewater Generation (MGD)	1.07	0.88	1.26
Solid Waste Generation (tons per day)	38.00	29.55	43.53
Electricity Consumption (MkWH) per day	0.71	0.53	0.78
Natural Gas Consumption (MCF per day)	1.99	1.48	2.17

MGD = million gallons per day  
MkWH = million kilowatt hours  
MCF = million cubic feet

**Table 2.5-2. Summary of Potential Environmental Impacts from the Proposed Action and Alternatives (2020)<sup>(a)</sup>**

**Page 1 of 4**

Resource Category	Proposed Action/Outgrant Alternative			No-Action Alternative
	Scenario A	Scenario B	Scenario C	
<b>Hazardous Materials Management</b>	<b>Impacts:</b>  Hazardous materials usage could increase over baseline conditions as a result of proposed activities. An implementation plan and a TRI report may need to be prepared. Hazardous materials, storage tanks, pesticides, radioactive materials, and ordnance would be managed in accordance with applicable regulations; no impacts are anticipated.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Hazardous materials usage and management of hazardous materials, storage tanks, pesticides, radioactive materials, and ordnance would be similar to baseline conditions; no impacts are anticipated.
<b>Solid and Hazardous Waste Management</b>				
<ul style="list-style-type: none"> <li>Solid Waste Management</li> </ul>	<b>Impacts:</b>  ROI solid waste generation would increase, but would only be 0.32 percent of the total expected increase within the ROI projected to occur at Brooks AFB. No impacts are anticipated.	<b>Impacts:</b>  ROI solid waste generation would increase, but would only be 0.25 percent of the total expected increase within the ROI projected to occur at Brooks AFB. No impacts are anticipated.	<b>Impacts:</b>  ROI solid waste generation would increase, but would only be 0.37 percent of the total expected increase within the ROI projected to occur at Brooks AFB. No impacts are anticipated.	<b>Impacts:</b>  ROI solid waste generation would increase as a result of regional growth. No impacts are anticipated.
<ul style="list-style-type: none"> <li>Hazardous Waste Management</li> </ul>	<b>Impacts:</b>  Hazardous waste generation could increase over baseline conditions as a result of proposed activities. No new development would occur on active IRP sites. Hazardous waste, IRP remediation activities, asbestos, medical/ biohazardous waste, and lead-based paint would be managed in accordance with applicable regulations; no impacts are anticipated.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Hazardous waste generation and management of hazardous waste, IRP remediation activities, asbestos, medical/biohazardous waste, and lead-based paint would be similar to baseline conditions. No impacts are anticipated.

**Table 2.5-2. Summary of Potential Environmental Impacts from the Proposed Action and Alternatives (2020)<sup>(a)</sup>**

**Page 2 of 4**

Resource Category	Proposed Action/Outgrant Alternative			No-Action Alternative
	Scenario A	Scenario B	Scenario C	
<b>Natural Environment</b> <ul style="list-style-type: none"> <li>Geology and Soils</li> </ul>	<b>Impacts:</b>  Short-term impacts from 499 acres of ground disturbance associated with construction.  Compliance with TPDES and NPDES permit requirements and standard construction practices would reduce the potential for erosion effects from construction activities. No impacts are anticipated.	<b>Impacts:</b>  Similar to Scenario A; ground disturbance would total 420 acres.	<b>Impacts:</b>  Similar to Scenario A; ground disturbance would total 547 acres.	<b>Impacts:</b>  No ground disturbance; no impacts are anticipated.
<ul style="list-style-type: none"> <li>Water Resources</li> </ul>	<b>Impacts:</b>  Compliance with TPDES and NPDES permit requirements and standard construction practices would reduce the potential for surface water impacts.  No new development would occur within delineated floodplains.  No impacts are anticipated to groundwater availability or water supply. Implementation of the SAWS recycled water distribution system would decrease water consumption.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  No new construction and no increase in on-base water demand. Increase in ROI water demand as a result of regional growth. Implementation of the SAWS recycled water distribution system would decrease water consumption. No impacts are anticipated.

**Table 2.5-2. Summary of Potential Environmental Impacts from the Proposed Action and Alternatives (2020)<sup>(a)</sup>**

**Page 3 of 4**

Resource Category	Proposed Action/Outgrant Alternative			No-Action Alternative
	Scenario A	Scenario B	Scenario C	
<ul style="list-style-type: none"> <li>Air Quality</li> </ul>	<p><b>Impacts:</b></p> <p>During construction activities, use of wetting techniques and reduced mobile equipment speeds would reduce particulate emissions. Construction emissions would be short-term and temporary, and would not hinder maintenance of the NAAQS.</p> <p>During operations, compliance with applicable local permitting regulations for small stationary sources would control any resulting emissions for various pollutants, including HAPs. Criteria pollutant emissions would be below the U.S. EPA significance thresholds.</p> <p>No air quality impacts are anticipated.</p>	<p><b>Impacts:</b></p> <p>Similar to Scenario A.</p>	<p><b>Impacts:</b></p> <p>Similar to Scenario A.</p>	<p><b>Impacts:</b></p> <p>No increase over baseline conditions due to on-base activities. No impacts are anticipated.</p>
<ul style="list-style-type: none"> <li>Noise</li> </ul>	<p><b>Impacts:</b></p> <p>During construction, noise would be short-term and temporary. Projected noise levels (<math>L_{dn}</math>) on sensitive receptors from increased surface traffic would range from 63 to 67 decibels, an increase of up to 3 decibels over No-Action Alternative projections. No noise impacts are anticipated.</p>	<p><b>Impacts:</b></p> <p>Similar to Scenario A.</p>	<p><b>Impacts:</b></p> <p>Similar to Scenario A.</p>	<p><b>Impacts:</b></p> <p>Slight increase in surface traffic noise levels as a result of regional growth. No impacts are anticipated.</p>

**Table 2.5-2. Summary of Potential Environmental Impacts from the Proposed Action and Alternatives (2020)<sup>(a)</sup>**

**Page 4 of 4**

Resource Category	Proposed Action/Outgrant Alternative			No-Action Alternative
	Scenario A	Scenario B	Scenario C	
<ul style="list-style-type: none"> <li>Biological Resources</li> </ul>	<b>Impacts:</b>  No impacts to vegetation, wildlife, threatened and endangered species, or sensitive habitats are anticipated. Wetlands would not be disturbed during construction activities.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  No ground disturbance; no impacts are anticipated.
<ul style="list-style-type: none"> <li>Cultural Resources</li> </ul>	<b>Impacts:</b>  Potential impacts from conveyance of historic properties from federal control.  <b>Mitigation:</b>  Transfer/outgrant with protective covenants or other measures developed through consultation with the SHPO.	<b>Impacts:</b>  Similar to Scenario A.  <b>Mitigation:</b>  Similar to Scenario A.	<b>Impacts:</b>  Similar to Scenario A.  <b>Mitigation:</b>  Similar to Scenario A.	<b>Impacts:</b>  No impacts are anticipated, as historic properties would remain under federal control.
<b>Environmental Justice</b>	<b>Impacts:</b>  No adverse impacts identified; therefore, no disproportionately high and adverse impacts to low-income and minority populations, and no environmental justice analysis required.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  Similar to Scenario A.	<b>Impacts:</b>  No impacts identified; therefore, no disproportionately high and adverse impacts to low-income and minority populations; no environmental justice analysis required.

Note: (a) Mitigation measures are included where applicable.

EPA = Environmental Protection Agency  
 HAP = hazardous air pollutant  
 IRP = Installation Restoration Program  
 L<sub>dn</sub> = day-night average sound level  
 NAAQS = National Ambient Air Quality Standards  
 NPDES = National Pollutant Discharge Elimination System  
 ROI = region of influence  
 SAWS = San Antonio Water System  
 SHPO = State Historic Preservation Officer  
 TPDES = Texas Pollutant Discharge Elimination System  
 TRI = Toxic Release Inventory

**THIS PAGE INTENTIONALLY LEFT BLANK**



## **3.0 AFFECTED ENVIRONMENT**

---

### **3.1 INTRODUCTION**

This chapter describes the current environmental condition of Brooks AFB and its region of influence (ROI). It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from implementation of the BCBP. The baseline conditions assumed for the purposes of analysis are the existing conditions at Brooks AFB.

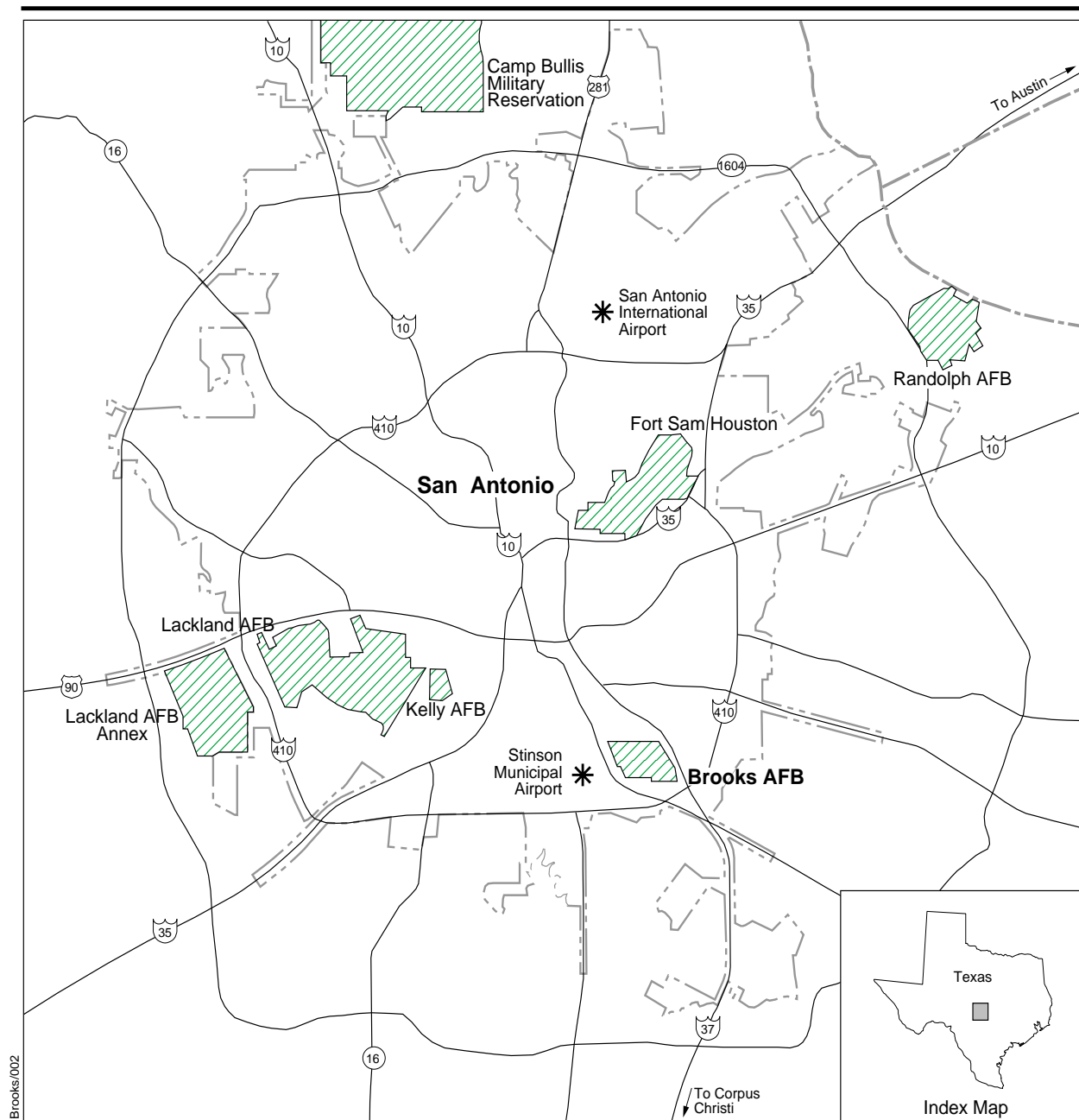
The ROI to be evaluated has been defined for each resource area potentially affected by the Proposed Action and alternatives. The ROI determines the geographical area to be addressed as the affected environment. Although the base boundary may constitute the ROI limit for many resources, potential impacts associated with certain issues (e.g., air quality, utility systems, water resources) transcend these limits.

### **3.2 LOCAL COMMUNITY**

#### **3.2.1 Community Setting**

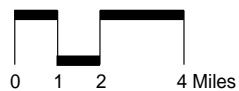
Situated in Bexar County, in south-central Texas, the City of San Antonio occupies 388.6 square miles. Brooks AFB is in the southeast section of San Antonio, off Interstate (I)-37 at S.E. Military Drive (Figure 3.2-1). Brooks AFB was founded in 1917 and is named after aviation cadet Sydney Brooks, the first San Antonian to lose his life in an aviation accident in World War I. Brooks AFB has a long and varied history; it was the first balloon and airship school in the American military, a flying school in World War I and World War II, and the first home for aviation medicine. Today, Brooks AFB is the home of the 311 HSW, the Air Force agency responsible for research, development, and acquisition of products related to the “human factor” in Air Force operations. Brooks AFB continues to be an important medical locale, serving as host to the Air Force School of Aerospace Medicine. It is also the primary environmental installation in the Air Force, housing both AFCEE and AFIERA.

The region surrounding Brooks AFB is suburban, with mixed industrial, commercial, and residential development. Development occurs to the north, east, and west of Brooks AFB along S.E. Military Drive, Goliad Road, and South Presa Street. The San Antonio Metropolitan Statistical Area (MSA), comprised of Bexar, Comal, Guadalupe, and Wilson counties, is considered the ROI for purposes of describing and analyzing the potential population, employment, and income effects from implementation of the BCBP.



### LEGEND

- County Boundary
- City of San Antonio Boundary
- ✱ Public Airport
- 95 Interstate Highway
- 87 U.S. Highway
- 27 State Highway



### Regional Map

**Figure 3.2-1**

### **3.2.1.1 Employment and Income**

#### **Employment**

In 1997, the latest year for which data are available, there were 870,683 full- and part-time employees in the San Antonio MSA, an increase of 3.8 percent over 1996 and 28.6 percent over the last 10 years. The largest industries in 1997 in terms of employment were services (32 percent), retail trade (18 percent), and local government (9 percent) (Bureau of Economic Analysis, 2000a). Bexar County accounted for 91 percent of the MSA's employment in 1997, down from 92 percent in both 1990 and 1987 (Bureau of Economic Analysis, 2000a). Employment growth is expected to continue, although at a slightly lower annual rate of 2.7 percent over the next few decades (Bureau of Economic Analysis, 1995).

Over the last 10 years, the fastest growing industries were transportation and public utilities (64 percent), services (58 percent), and agricultural services, forestry, and fishing (55 percent). The slowest growing, actually declining, industries were mining (-40 percent), military (-15 percent), and federal civilian government (-15 percent). In absolute numbers, services increased the most, by 101,203 employees, followed by retail trade (34,943 employees) and transportation and utilities (14,238 employees). Mining lost 3,547 employees, while federal civilian government lost 644 and military lost 332 employees (Bureau of Economic Analysis, 2000a).

Employment in the San Antonio MSA is projected to grow from 1,003,290 by 2005, to 1,049,531 by 2010, and to 1,104,518 by 2020, representing a growth of 10.1 percent between 2005 and 2020. Personal income is projected to increase to \$50.05 billion by 2005, to \$61.7 billion by 2010, and to \$88.5 billion by 2020, representing an increase of 76 percent between 2005 and 2020. The MSA's population is projected to grow by 18.8 percent between 2005 and 2020, from 1.73 million in 2005 to 2.06 million in 2020.

Direct employment at Brooks AFB was 3,844 in 2000. In addition, the base hosts more than 7,000 students or temporary duty personnel annually at its school and other training programs (U.S. Air Force, 1999c).

#### **Income**

In 1997, the San Antonio MSA had a total personal income of \$33.72 billion, ranking San Antonio 46th among the nation's metropolitan areas. This figure reflected an increase of 6.9 percent from 1996, compared to the 1996-1997 national increase of 5.7 percent. In 1997, the MSA had a per capita personal income of \$22,379 (88 percent of the national average of \$25,288), ranking it 169th of metropolitan areas in the United States. Per capita personal income increased by 5.2 percent from 1996, compared to the 1996-1997 national increase of 4.7 percent (Bureau of Economic Analysis, 2000b). Bexar County accounted for 88 percent of the MSA's total income in 1997, down from 89 percent in both 1990 and 1987 (Bureau of Economic Analysis, 2000a).

Between 1987 and 1997, total personal income increased at an average annual growth rate of 6.8 percent, compared to the national average annual growth rate of 5.8 percent over the same period. Per capita income increased at an average annual growth rate of 5.3 percent over the last 10 years, compared to the national average annual growth rate of 4.7 percent over the same period (Bureau of Economic Analysis, 2000b). Total personal income is expected to grow over the next few decades, although at a lower annual rate of 2.7 percent (Bureau of Economic Analysis, 1995).

### **3.2.1.2 Population.**

Brooks AFB is within the San Antonio MSA, which had an estimated population of 1,538,338 in 1998, up from 1,327,371 in 1990, representing a 15.9-percent increase, the same rate of growth experienced by the state of Texas over the 1990-1998 period. Bexar County, which contains the City of San Antonio, represented 88 percent of the MSA's population in 1998, down slightly from 89 percent in 1990 (U.S. Bureau of the Census, 1999). Growth is expected to continue over the next few decades, although at a slower annual rate of 0.99 percent (Bureau of Economic Analysis, 1995).

In terms of age distribution, the MSA's population had a distribution among age groups very similar to that of the state, but younger than that of the nation as a whole. In 1998, 39.5 percent of the MSA's population was younger than 25 years old, compared to 38.9 percent for Texas and 35.2 percent for the United States (U.S. Bureau of the Census, 1999; Bureau of Economic Analysis, 2000a).

In 1998, the base population consisted of approximately 700 military personnel and their dependents (U.S. Air Force, 1999c).

## **3.2.2 Land Use and Aesthetics**

This section describes the land uses and aesthetics for the base property and the areas surrounding Brooks AFB. Future land uses are assumed to be similar to existing land uses in the vicinity of the base unless specific development plans project a change. The ROI includes the base property and potentially affected adjacent properties.

### **3.2.2.1 Land Use Plans and Regulations and Zoning**

**Land Use Plans and Regulations.** Land use plans and regulations include comprehensive plans (general or master plans), zoning, and any other long-term land use policies. Within the state of Texas, only incorporated areas are subject to land use regulations and zoning.

The comprehensive plan for a jurisdiction represents the official position on long-range development and resource management. The position is expressed in goals, policies, plans, and actions regarding the physical, social, and economic environments, both current and long term. The current Comprehensive Master Plan for CoSA was adopted on May 29, 1997. The Master Plan goals and policies provide guidance on the evaluation of future decisions on land use,

infrastructure improvements, and transportation. The goals and policies that are the primary body of the plan focus on six areas:

- Growth Management
- Economic Development
- Community Services
- Neighborhoods
- Natural Resources
- Urban Design.

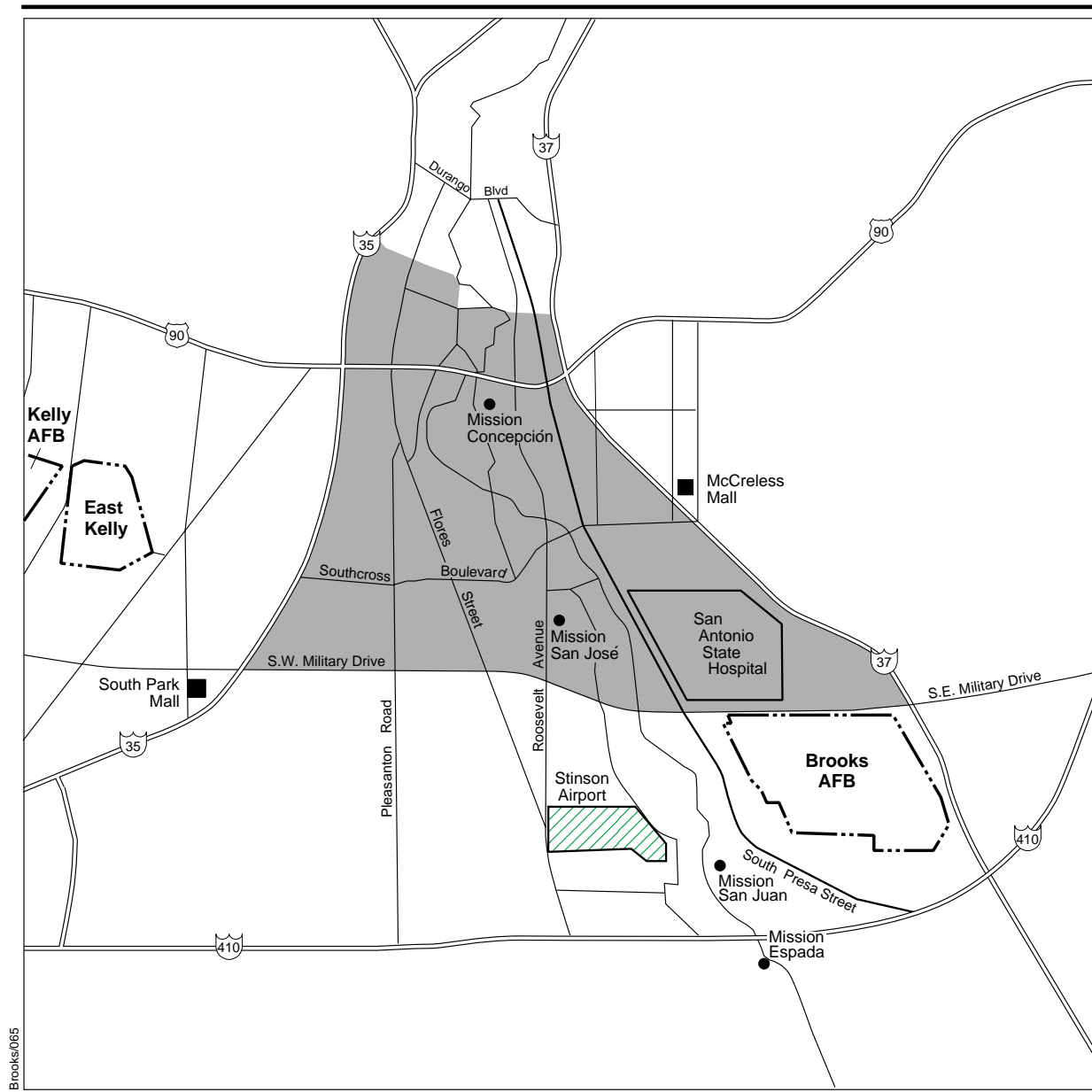
The goals and policies within each area provide the functional framework to guide development and implementation of CoSA's land use policies.

**South Central San Antonio Community Plan.** The land areas north of Brooks AFB are included in the South Central San Antonio Community Plan (South Central Community and City of San Antonio Planning Department, 1999), a component of CoSA's Comprehensive Master Plan. The South Central Community is bounded by Alamo Street/railroad tracks to the north, I-35 to the west, S.W. and S.E. Military drives to the south, and I-37 to the east (Figure 3.2-2). This plan's strategic and major actions address neighborhood development, environmental issues, community facilities, quality of life, transportation networks, and plan implementation.

The neighborhood development and environmental sections of the South Central San Antonio Community Plan focus on strategies to develop and enhance the community's commercial corridors, encourage rehabilitation and construction of housing, and create a healthy environment for families and businesses. The community facilities and quality of life sections of the plan focus on strategies to enhance the community's Missions, parks, and the San Antonio River; increase community identity; improve overall community appearance; support existing community facilities; and maintain a safe environment. The transportation network section of the plan focuses on strategies to improve the quality and maintenance of area streets, curbs, and sidewalks; enhance the area's infrastructure; improve accessibility to and from highways; provide accessible, convenient transit; provide smooth traffic flow at railroad crossings; and address railroad noise concerns while maintaining safety. The plan implementation section focuses on strategies to organize a community action group to ensure implementation of the South Central San Antonio Community Plan.

**Avenidas del Rio Business Corridor.** The areas west of Brooks AFB are included in the Avenidas del Rio Business Corridor (Figure 3.2-3). The Avenidas del Rio Business Corridor Report addresses economic development concepts and strategies for the neighborhood areas on either side of Roosevelt Avenue from downtown San Antonio to I-410. Concepts and strategies for the area near Brooks AFB include development of a technology transfer center and research business parks associated with the scientific research conducted at the base. The Avenidas del Rio Business Corridor Report is consistent with the plans identified in the South Central San Antonio Community Plan.

**Defense Economic Readjustment Zone.** A Defense Economic Readjustment Zone was established in San Antonio to induce capital investment and create new



#### EXPLANATION

- Planning Area
- Military Installation
- 35 Interstate Highway
- 90 U.S. Highway

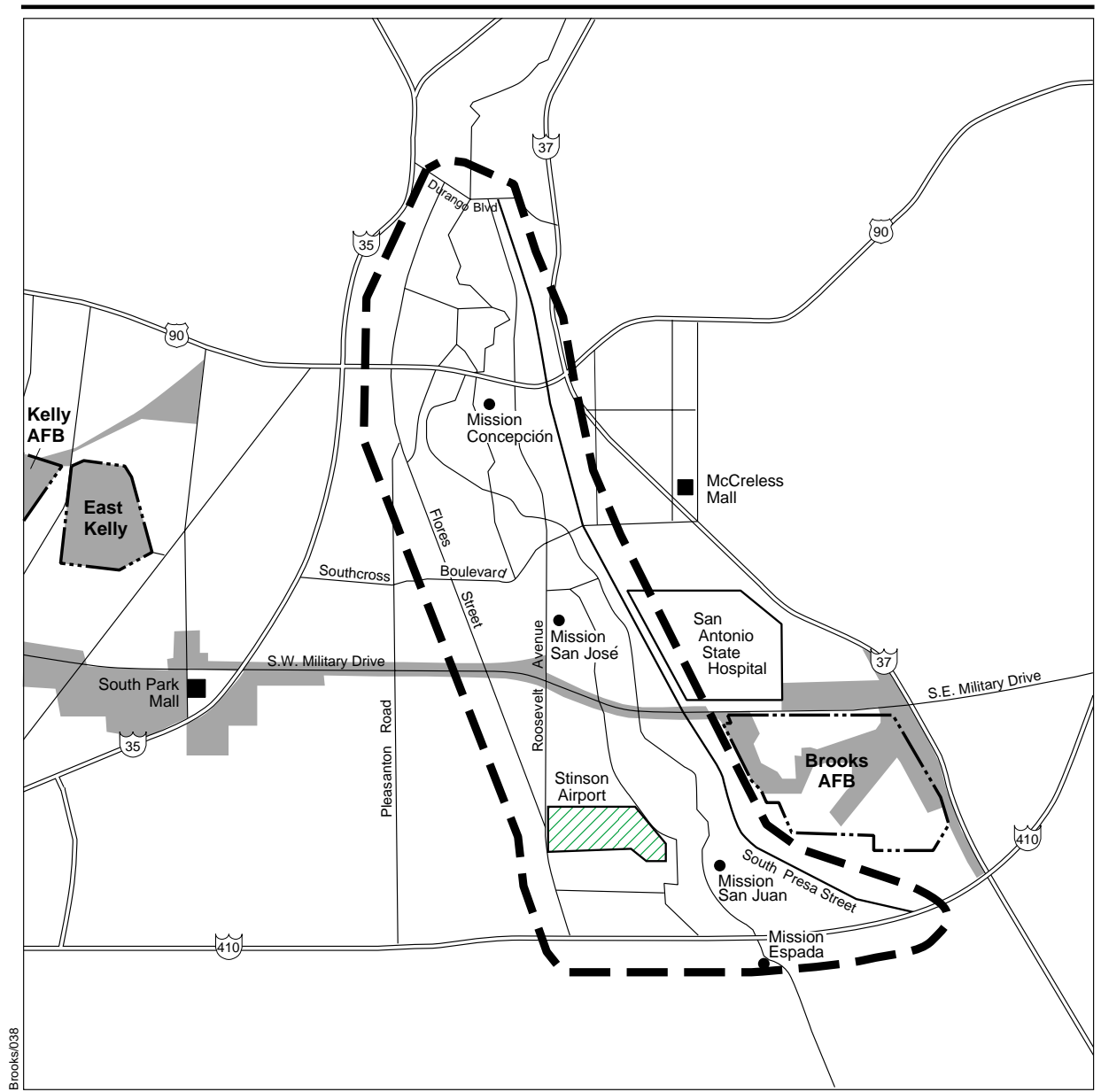
0 4000 8000 Feet





Source: South Central Community and City of San Antonio Planning Department, 1999.

### South Central San Antonio Community Plan Area

**Figure 3.2-2**



#### EXPLANATION

-  Defense Economic Readjustment Zone
-  Avenidas del Rio Business Corridor
-  Military Installation
-  Interstate Highway
-  U.S. Highway

0 4000 8000 Feet



Source: South San Antonio Chamber of Commerce, 1996;  
Texas Department of Economic Development, 1997.

#### Future Economic Development Corridors

Figure 3.2-3

permanent jobs in adversely impacted defense-dependent communities. Qualified businesses in the Defense Economic Readjustment Zone may be eligible for a variety of local and state incentives, including certain tax reductions and refunds and regulatory relief. Portions of Brooks AFB and the surrounding areas are contained within this zone (see Figure 3.2-3).

**South Central San Antonio Community Plan.** The CoSA Economic Development Department is currently developing a Comprehensive Economic Development Plan for south-central San Antonio. This plan will include a comprehensive land use and urban design plan for Brooks AFB and surrounding neighborhoods, to include the area roughly bounded by Roosevelt Avenue to the west, I-410 to the south, I-37 to the east, and 1/4 mile north of S.E. Military Drive, inclusive of all platted subdivisions or developments (Figure 3.2-4). The land use and urban design plan, when completed in June 2001, will describe development patterns and implementation strategies that are consistent with the CoSA Comprehensive Master Plan, the South Central San Antonio Community Plan, and the Community Revitalization Action Group policies. CoSA intends to use the description of the proposed land uses listed under Scenario A from this EIS (see Section 2.3.1) as the basis for their land use component.

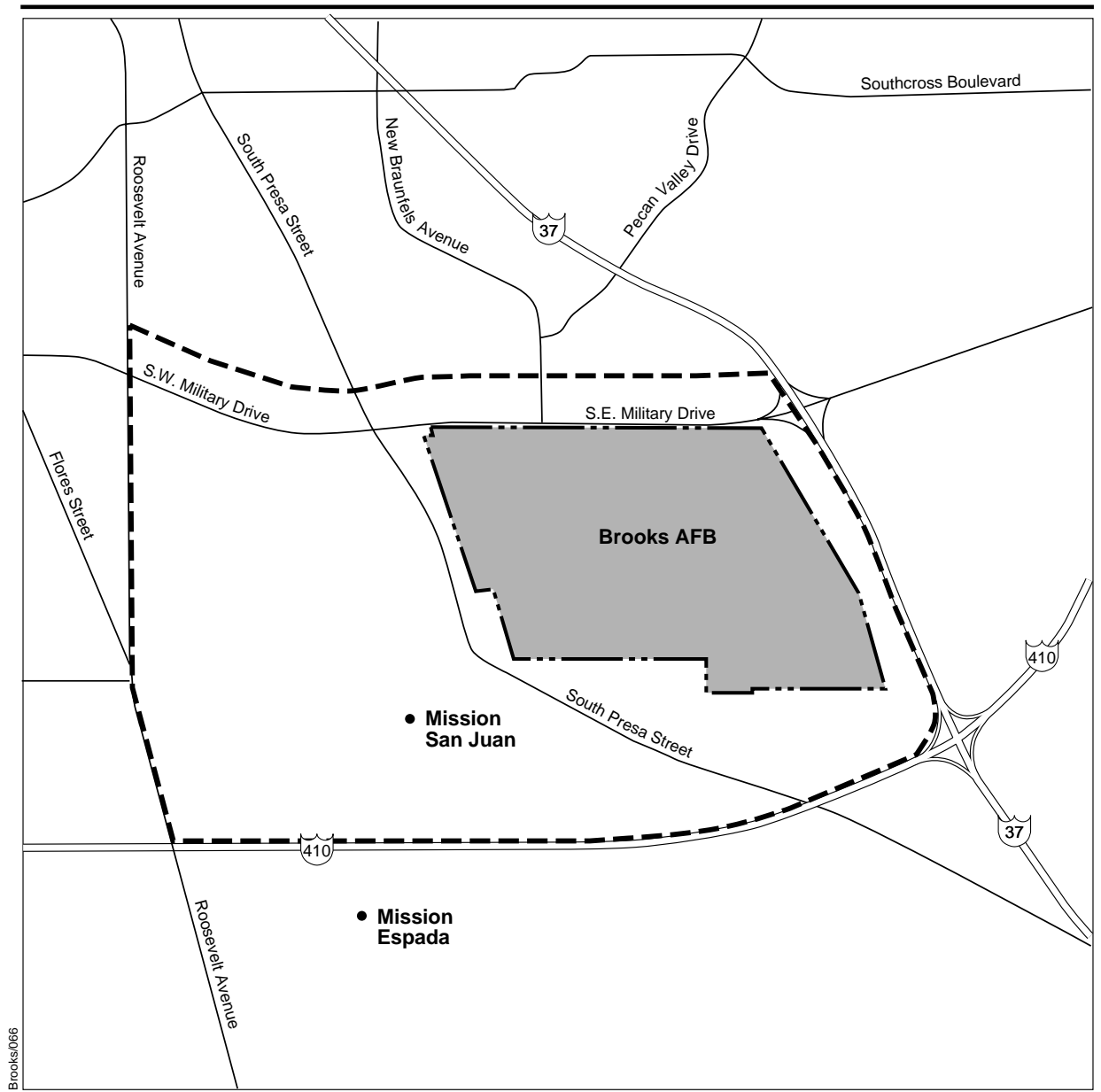
**Zoning.** Zoning provides for the division of a jurisdiction, in conformance with a comprehensive land use plan, into districts within which types of land use and building standards are set. Zoning is designated to achieve various community goals, including the implementation of the plan. CoSA's zoning and subdivision regulations are included in CoSA's Unified Development Code. The Unified Development Code consolidates all of the regulations pertaining to land use and development. Zoning districts surrounding Brooks AFB include industrial, business, and residential. Industrial districts are situated along Goliad Road on the northeast side of the base, along the south boundary on the west side of the base, and along the west boundary. Business districts are on the west and east ends of the north base boundary. There are residential districts along the south portion of the east boundary and along the north boundary in the central portion of the base. Residential districts are also adjacent to the southwest and southeast boundaries of the base.

#### **3.2.2.2 On-Base Land Use.**

On-base land use is characterized by the activities that occur within the base boundaries. Land uses within Brooks AFB are based on the Base Comprehensive Plan (U.S. Air Force, 1989). The Base Comprehensive Plan represents the base's position on long-range development and resource management. The present and long-term position is expressed in goals, policies, plans, and actions regarding the physical, social, and economic environment.

A small cantonment area contains most of the on-base development. The existing land use categories include industrial, institutional (medical and education), administrative, community (commercial and services), residential (accompanied and unaccompanied), public facilities/recreation, and vacant land. Existing on-base land use is summarized in Table 3.2-1 and shown on Figure 3.2-5.





#### EXPLANATION

- Planning Boundary
- Military Installation
- 37 Interstate Highway



### Comprehensive Economic Development Plan for South Central San Antonio

Figure 3.2-4

**Table 3.2-1. On-Base Land Use**

Land Use Category	Description	No. of Acres
Industrial	Warehousing; open storage; vehicle shops; fuel storage; maintenance shops; solid/liquid waste facilities	130
Medical	Clinic; dental clinic; medical storage; medical research and medical training	168
Administrative	Financial, logistics, communications, and security police facilities	60
Community	Services (e.g., dining hall, billeting), Commissary, base exchange and service clubs	40
Housing	Family and bachelor housing; dormitories; temporary and visitors' quarters	62
Outdoor Recreation	Parks, picnic areas; campgrounds; golf course, riparian areas; natural and landscaped open space; indoor/outdoor recreation and physical training facilities; monuments; museum	277
Open Space	Lands where no other use can be identified; barren, disturbed, unreclaimed land	573

Note: For analysis purposes, the following land uses were combined into single categories: medical-primary care, medical research, and medical training (Medical); community-commercial and community service (Community); housing-accompanied and housing-unaccompanied (Housing); and open space and water (Open Space).

Source: Adapted from U.S. Air Force, 1989.

### **3.2.2.3 Adjacent Land Use.**

Adjacent land use includes the lands immediately surrounding the base. Land uses surrounding Brooks AFB were determined using zoning maps provided by CoSA Planning Department and windshield surveys conducted in July 1998.

The area directly adjacent to the base is partially developed with mixed institutional, industrial, commercial, and residential uses, which are separated by large parcels of vacant land (Figure 3.2-6). Residential uses are scattered around the base with low-density, single-family housing near the southeast corner. Low-density residential housing is also scattered along the south, west, and north sides of the base. The San Antonio State Hospital (institutional) is northwest of the base. Other land uses to the north of the base include a trailer park (residential) and a commercial shopping center. Adjacent land uses on the east side of the base include a truck distribution and storage center (industrial), a mobile home park (residential), and several parcels of vacant land. Most of the land on the south side of the base is vacant, although residential uses are present between Goliad and Siluria roads adjacent to the southern base boundary. Land uses along the west side of the base include a mixture of residential, commercial, industrial, open space, the remains of the historic acequia system, and the San Antonio Missions National Historical Park (see Figure 3.2-6). Four frontier missions, which were part of a colonization system that stretched across the Spanish southwest in the seventeenth, eighteenth, and nineteenth centuries, are preserved within the Park. These include Missions San Jose, San Juan, Espada,



#### EXPLANATION

- |                    |                                    |
|--------------------|------------------------------------|
| (1) Industrial     | (6) Outdoor Recreation             |
| (2) Medical        | (7) Open Space                     |
| (3) Administrative | --- Brooks Air Force Base Boundary |
| (4) Community      | 37 Interstate Highway              |
| (5) Housing        |                                    |

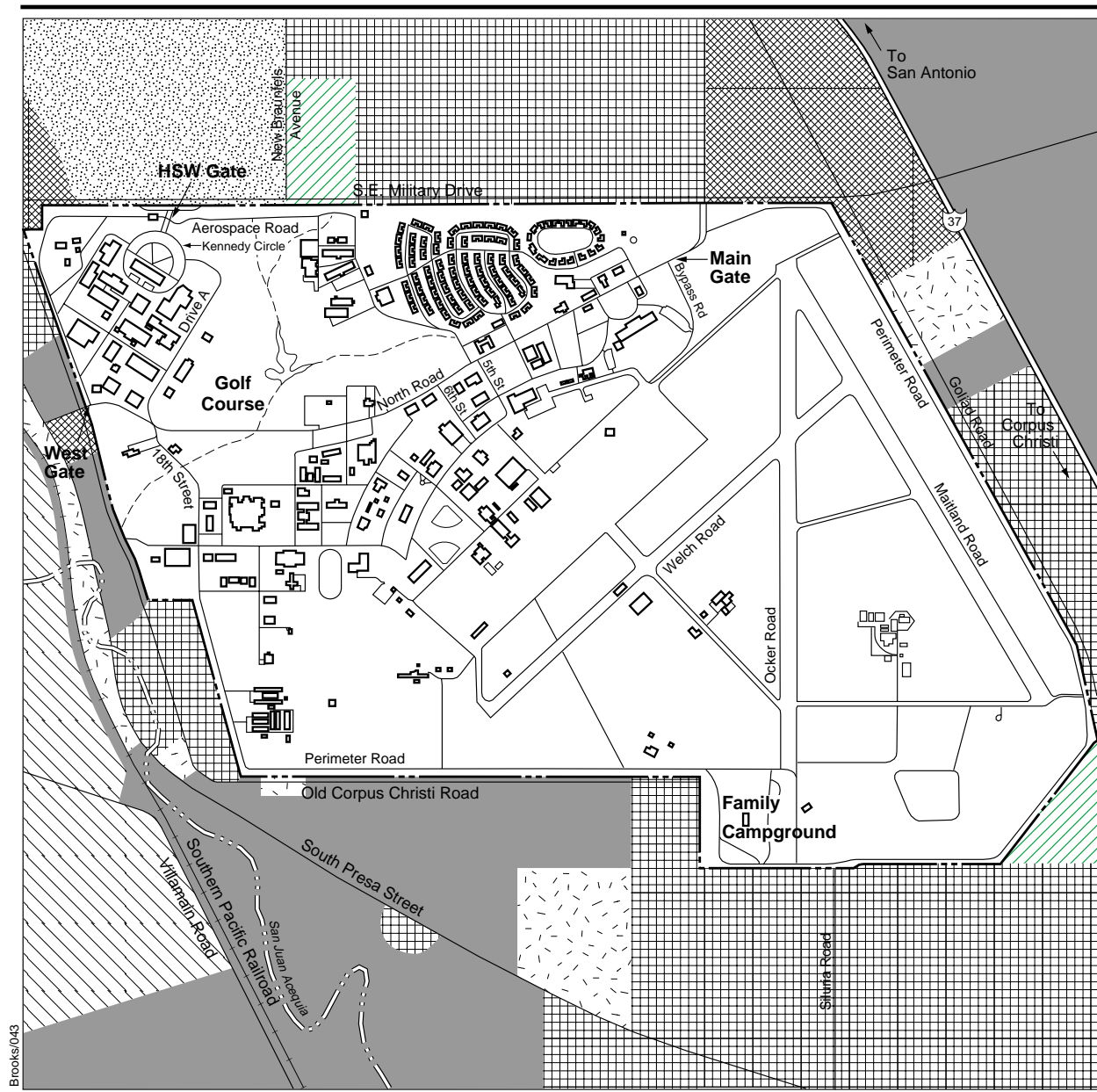
0 400 800 1600 Feet



Source: Adapted from U.S. Air Force, 1989. For analysis purposes, the following land uses were combined into single categories: medical-primary care, medical research, and medical training (Medical); community-commercial and community service (Community); housing-accompanied and housing-unaccompanied (Housing); and open space and water (Open Space).

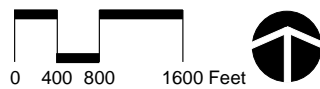
#### Existing On-Base Land Use

**Figure 3.2-5**



#### EXPLANATION

	Industrial		San Antonio Missions National Historical Park
	Institutional (Medical and Education)		Vacant Land
	Commercial		Brooks Air Force Base Boundary
	Residential		Interstate Highway
	Public Facilities/Recreation		Acequia



#### Adjacent Land Use

Figure 3.2-6

and Conception. In addition to the four missions and remains of the acequia system, the 819-acre San Antonio Missions National Historical Park encompasses other types of cultural and natural resources sites and is visited by more than 1.2 million visitors annually.

#### **3.2.2.4 Aesthetics.**

This section discusses the visual resources for the on- and off-base areas that are visible from base property. Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. Criteria used in analysis of these resources include visual sensitivity, which addresses the degree of public interest in a visual resource and concern over adverse changes in its quality. Visual sensitivity is categorized in terms of high, medium, or low levels.

High visual sensitivity exists in areas where views are rare, unique, or in other ways special, such as in remote or pristine environments. High-sensitivity views would include landscapes that have landforms, vegetative patterns, water bodies, or rock formations of unusual or outstanding quality. Areas of medium visual sensitivity, in which the presence of motorized vehicles and other evidence of modern civilization is commonplace, are more developed than areas of high visual sensitivity. Landscape features in areas of medium visual sensitivity are also more common than features in high visual sensitivity areas, and they generally contain varieties in form, color, line, and texture. Low visual sensitivity areas tend to have minimal landscape features, with little change in form, color, line, and texture.

CoSA has proposed a change to the zoning ordinance that will establish Viewshed Protection Districts. The proposed regulation defines a viewshed as any area of open space or view in front of or behind:

- The major entrance to a designated historic landmark, building, object, site, or structure
- The primary access point or points to a designated historic district
- The primary access to a major tourist attraction
- The primary view or access point to the San Antonio River Walk, a city lake, or park that has been so designated in the zoning ordinance as a Viewshed Protection District.

Historic districts, landmarks, buildings, objects, sites, and structures within the ROI are described in Section 3.5.6, Cultural Resources. There are no city lakes or parks within the ROI that have been designated as viewshed protection districts.

**Off Base.** Topography in the vicinity of Brooks AFB is relatively flat. Mixed residential and commercial uses dominate the landscape surrounding the base. Areas of vacant land/open space separate the mixed development. Landscaping consisting of oak trees, varieties of shrubs, and grasses is prominent to the east, south, and west of the base. Roads, buildings, and drainage systems are

interspersed with the landscaping. Adjacent areas to the east, south, and west of the base are considered to be of medium visual sensitivity. The area north of the base has been developed with large-scale commercial and administrative facilities. Landscaping in this area is less evident and contains large vehicle parking areas. The area north of the base is considered to be of low visual sensitivity.

**On Base.** Four architectural districts are present on Brooks AFB (U.S. Air Force, 1989). The Institutional Community District includes the U.S. Air Force School of Aerospace Medicine and the Air Force Research Laboratory. Buildings are large and constructed of rose-colored brick with fairly clean, simplistic detailing. The Research, Development, and Training District includes facilities that are separated from each other and/or the rest of the base facilities. Their identifying feature is that they are pre-engineered buildings with exterior metal finish. The Administrative and Recreational District includes buildings that provide base support functions such as the clinic, chapel, and gymnasium. These buildings include a variety of architectural styles that are generally more compatible with adjacent building styles than they are suited to the function of the facility. Construction materials are varied and include stucco, brick, and precast concrete. The Residential District includes family housing, which is distinctly separated from the rest of the base, yet lies within its boundaries. The housing units consist of Capehart duplexes and single-family dwellings. Housing units are of brick and wood-frame construction.

Landscape themes include planting treatments, site elements, barriers and screening, pedestrian environments, and open space, all of which contribute to the environment and visual quality of the base. Brooks AFB is considered to be of medium visual sensitivity.

### **3.2.3 Transportation**

The ROI for the transportation analysis includes the key road networks and other transportation modes that provide access to Brooks AFB. This analysis will focus on the regional and local roadways surrounding the base.

#### **3.2.3.1 Roadways.**

The roadway network for the San Antonio area is classified into the following functional categories:

- Expressway - A limited access, normally grade-separated, thoroughfare designed for the movement of large volumes of vehicular traffic operating at high speeds for long distances, connecting principal or regional activity centers.
- Primary Arterial - A major thoroughfare, with limited at-grade access, which expands and links to the expressway system and is designed primarily for the movement of through traffic between activity centers of medium intensity.

- Secondary Arterial - A major thoroughfare, with limited at-grade access, which supports the primary arterial system by providing essential system linkages to expressways, primary arterials, and activity centers of medium intensity.
- Collector Street - A roadway that is designed to provide direct access to residential, commercial, industrial, and other activity areas with a primary function of collecting and distributing traffic between local access streets and the major thoroughfare system.
- Local Access Street - A roadway (primarily a residential street) that is designed to provide direct access to individual homes, shops, abutting land, and similar minor traffic destinations, with no provision for through traffic.

Expressways and primary and secondary arterials comprise the major thoroughfare system. The minor or local street system is composed of collector and local access streets.

The evaluation of the existing roadway conditions focuses on capacity, which reflects the ability of the network to serve the traffic demand and volume, usually expressed in number of vehicles per hour. The capacity of a roadway depends on the street width, number of lanes, intersection control, and other physical factors. Depending on the project and data available, traffic volumes are typically reported as the number of vehicular movements averaged over a daily period (average daily traffic [ADT]) or an average annual period (annual average daily traffic [AADT]). PHV represents the most critical period for traffic operations and has the highest highway capacity requirement. The PHV is not constant from day to day or from season to season. The PHV on primary and secondary arterials is typically about 10 percent of the AADT; for rural highways, this figure may be as high as 25 percent (Transportation Research Board, 1998). These values are useful indicators in determining the extent to which the roadway segment is used and in assessing the potential for congestion or other traffic problems.

The performance of a roadway segment is generally expressed in terms of level of service (LOS). The LOS scale ranges from A to F, based upon a volume-to-capacity (V/C) ratio. LOS A, B, and C are considered good driving conditions with minor or tolerable delays by motorists. LOS D, E, and F are considered poor to completely jammed road situations. Table 3.2-2 presents the LOS designations and their associated V/C ratios.

**Regional.** Brooks AFB lies approximately 6 miles southeast of Downtown San Antonio. Regional and inter-regional access to the base is provided by a system of expressways and arterials (Figure 3.2-7). The base can be accessed from downtown San Antonio and other locations via I-37/U.S. Highway (U.S. #) 281, I-410/U.S. 281, and S.E. Military Drive (Loop 13).

I-37/U.S. 281 is a north-south, four-lane divided expressway that connects the City of San Antonio to Corpus Christi. I-410/U.S. 281 is also a four-lane, divided, looped expressway on the outskirts of downtown San Antonio. The ADT on I-37/U.S. 281 and I-410/U.S. 281 in 1996 was 31,000 and 25,000, respectively.

**Table 3.2-2. Road Transportation Levels of Service**

LOS	Description	Criteria (V/C)		
		Expressways	Primary and Secondary Arterial	Collector and Local Streets
A	Free flow, with users unaffected by presence of other roadway users	0 – 0.26	0-0.3	0-0.15
B	Stable flow, but presence of users in traffic stream become noticeable	0.27 – 0.42	0.31-0.5	0.16-0.27
C	Stable flow, but operation of single users becomes affected by intersections with others in traffic stream	0.43 – 0.63	0.51-0.7	0.28-0.43
D	High density, but stable flow; speed and freedom of movement are severely restricted; poor level of comfort and convenience	0.64 – 0.81	0.71-0.84	0.44-0.64
E	Unstable flow; operating conditions at capacity with reduced speeds, maneuvering difficult, and extremely poor levels of comfort and convenience	0.82 – 1.00	0.85-1.00	0.65-1.00
F	Forced breakdown flow with traffic demand exceeding capacity; unstable stop-and-go traffic	> 1.00	>1.00	>1.00

LOS = level of service  
V/C = volume-to-capacity

Source: Compiled from Transportation Research Board, 1998.

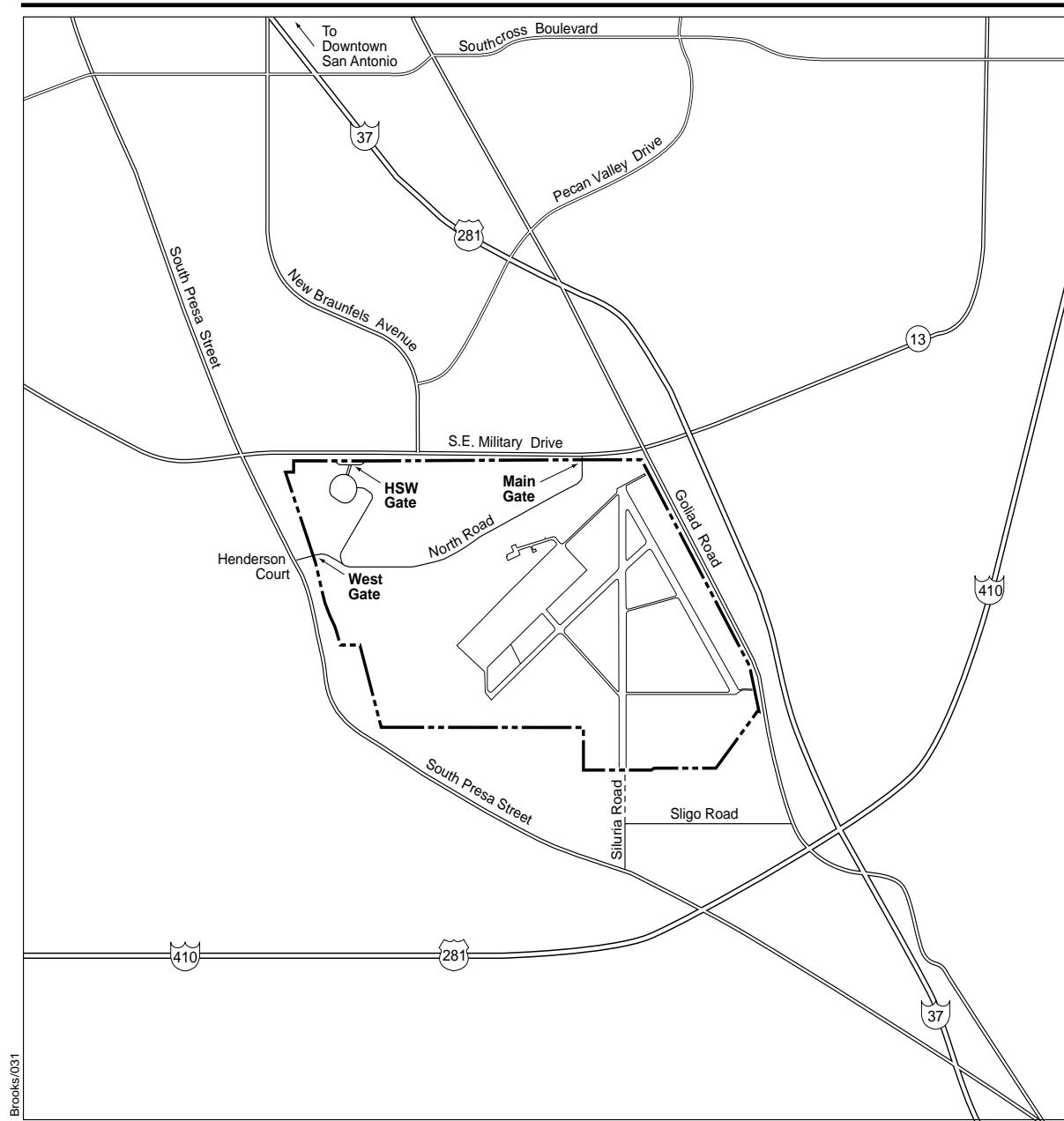
**Local.** Access into Brooks AFB is provided by the Main and HSW gates from S.E. Military Drive and by the West Gate on the west side of the base.

S.E. Military Drive, which follows the north boundary of Brooks AFB, is a six-lane, east-west, divided, primary arterial that connects I-37 with the base.

South Presa Street, on the west and southwest sides of Brooks AFB, is a four- to two-lane, undivided, secondary arterial that connects I-410 with S.E. Military Drive.

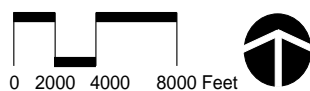
Goliad Road, adjacent to the east boundary of the base, is a two-lane, north-south, undivided, collector street that connects with S.E. Military Drive at the northeast corner of the base and I-410 south of the base. The segment of Goliad Road north of S.E. Military Drive is a four-lane, undivided, collector street that provides an alternate route east and northeast of the base and connects with I-37 to downtown San Antonio.





#### EXPLANATION

- Brooks Air Force Base Boundary
- 410 Interstate Highway
- 281 U.S. Highway



#### Regional and Local Road Systems

Figure 3.2-7

Henderson Court is a four-lane, undivided collector street that connects South Presa Street with North Road at the former West Gate. New Braunfels Avenue is a two-lane, undivided secondary arterial that provides an alternate route to I-37 north and northwest of the base.

The PHVs, capacities, and LOS on key expressways, primary and secondary arterials, and collector streets are listed in Table 3.2-3.

Planned transportation improvements are identified in the MPO Transportation Plan Project List. The Transportation Improvement Program (TIP) developed by the MPO, is a rolling, 3-year program. Each year projects are added to the third year of the program. The TIP can be amended and projects can be changed in scope, added, postponed, or deleted. Planned transportation improvements within the ROI include:

- Traffic Management System for I-37 from Loop 13 (S. E. Military Drive) to 1.3 miles south of U.S. 181
- Asphaltic concrete pavement overlay of South Presa Street (Spur 122) from S. E. Military Drive to U.S. 281.

**On Base.** The primary access to Brooks AFB is S.E. Military Drive off of I-37/ U.S. 281. The main access road through the base is North Road, a three-lane road with one lane inbound and two lanes outbound; a one-lane, each-way pattern accommodates most of the through traffic. The other primary on-base roads include Bypass Road, Inner Circle Drive, Lindbergh Drive, 5th Street, 6th Street, 12th Street, and 18th Street (Drive A). Bypass Road and 5th Street are the main routes going south from North Road. Figure 3.2-8 shows the gate locations and the on-base transportation network.

Two gates along S.E. Military Drive provide access to Brooks AFB. The Main Gate provides access via North Road. Approximately 70 percent of the traffic entering and exiting the base uses the Main Gate (approximately 5,250 vehicles per day). The HSW Gate provides access to the northwest portion of the base via Perimeter Road. Approximately 20 percent of the traffic entering and exiting the base uses this gate (approximately 1,500 vehicles per day). Although the West Gate (at the west end of North Road) has been closed, this gate was operational when baseline traffic data were collected in 1998. Approximately 750 vehicles per day utilized the West Gate at that time.

Table 3.2-4 provides the afternoon PHVs and LOS at selected segments on Brooks AFB.

### **3.2.3.2 Other Transportation Modes.**

Rail service is not available at Brooks AFB, although an operational rail network provides access to the City of San Antonio. There are fixed-route bus services in this area, provided by VIA. There is a VIA bus stop on the northeast corner of the base along S.E. Military Drive.

**Table 3.2-3. Peak-Hour Traffic Volumes and LOS on Key Roads**  
**Page 1 of 2**

Roadway	Segment/No. of Lanes	Capacity VPH	PHV	LOS
I-37	North of S.E. Military Drive, 4-lane freeway (3 lane each way)	7,000	4,100	C
I-37	S.E. Military Drive to I-410, 4-lane freeway (2-lane each way)	7,000	3,100	C
I-37	I-410 to South Presa Street, 4-lane freeway (2-lane each way)	7,000	4,100	C
I-410	East of I-37, 4-lane freeway (2-lane each way)	7,000	2,500	B
I-410	I-37 to South Presa Street, 4-lane freeway (2-lane each way)	7,000	2,500	B
I-410	West of South Presa Street, 4-lane freeway (2-lane each way)	7,000	2,200	B
S.E. Military Drive	I-37 to Goliad Road, 6-lane (3-lane each way)	8,400	2,500	A
S.E. Military Drive	Goliad Road to Main Gate, 6-lane (3-lane each way)	8,400	2,300	B
S.E. Military Drive	Main Gate to New Braunfels Avenue, 6-lane (3-lane each way)	8,400	1,200	A
S.E. Military Drive	New Braunfels Avenue to HSW Gate, 6-lane (3-lane each way)	8,400	1,950	A
S.E. Military Drive	HSW Gate to South Presa Street, 6-lane (3-lane each way)	8,400	1,600	A
S.E. Military Drive	West of South Presa Street, 6-lane (3-lane each way)	8,400	2,200	A
South Presa Street	North of S.E. Military Drive, 4-lane (2-lane each way)	5,600	600	A
South Presa Street	S.E. Military Drive to Henderson Court, 4-lane (2-lane each way)	5,600	600	A
South Presa Street	Henderson Court to Old Corpus Christi Road (location of Proposed Southwest Gate) 2-lane (1-lane each way)	2,800	650	B
South Presa Street	Old Corpus Christi Road (location of Proposed Southwest Gate) to Proposed New South Gate location 2-lane (1-lane each way)	2,800	650	B
South Presa Street	Proposed New South Gate location to I-410, 2-lane (1-lane each way)	2,800	550	B

**Table 3.2-3. Peak-Hour Traffic Volumes and LOS on Key Roads**  
**Page 2 of 2**

Roadway	Segment/No. of Lanes	Capacity VPH	PHV	LOS
South Presa Street	South of I-410, 2-lane (1-lane each way)	2,800	450	B
Goliad Road	North of S.E. Military Drive, 4-lane (2-lane each way)	5,600	950	B
Goliad Road	S.E. Military Drive to I-410, 2-lane (1-lane each way)	2,800	600	B
New Braunfels Avenue	North of S.E. Military Drive, 2-lane (1-lane each way)	2,800	950	C
New Braunfels Avenue	North of Pecan Valley Drive, 2-lane (1-lane each way)	2,800	1,150	C
Pecan Valley Drive	East of New Braunfels Avenue, 4-lane (2-lane each way)	5,600	400	A
Pecan Valley Drive	South of Goliad Road, 4-lane (2-lane each way)	5,600	1,250	A
Henderson Court	West Gate to South Presa Street, 4-lane (2-lane each way)	5,600	250	A

I = Interstate  
LOS = level of service  
PHV = peak-hour volume  
VPH = vehicles per hour

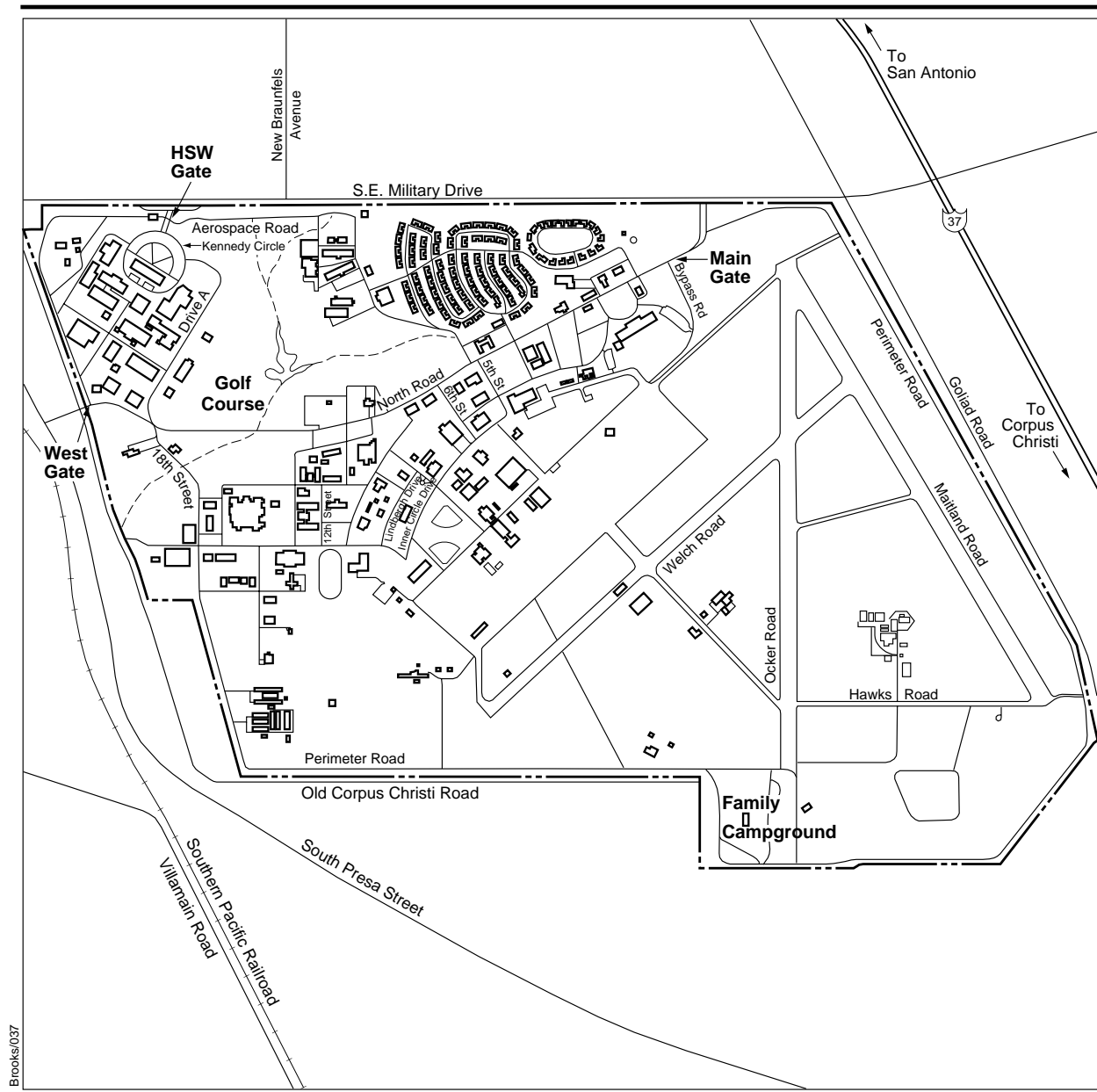
### 3.2.4 Utilities

The utility systems discussed in this section include the facilities and infrastructure used for:

- Potable water pumping, treatment, and distribution
- Wastewater collection and treatment
- Energy generation and distribution, including the provision of electricity, natural gas, and steam heat.

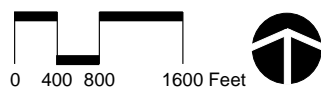
The major components of these utility systems include processing and distribution capability, storage capacity, average daily consumption, peak demand, and related factors required to determine the adequacy of the systems to provide service in the future.

The ROI for assessing utility systems comprises the service areas of each utility purveyor servicing the base and communities most affected by the BCBP, including the metropolitan area of San Antonio.



# EXPLANATION

- Brooks Air Force Base Boundary
- Interstate Highway



## Base Roads Brooks AFB, Texas

Figure 3.2-8

**Table 3.2-4. Afternoon Peak-Hour Traffic Volumes and LOS on Key Roads - Brooks AFB**

Roadway	Segment/No. of Lanes	Capacity VPH	1998 PHV	LOS
North Road	From Main Gate to Bypass Road, 4-lane (2-lane each way)	4,000	1,450	C
North Road	From Bypass Road to 5th Street, 3-lane (2-lane outbound, 2-lane inbound)	3,000	1,000	C
North Road	From 5th Street to 6th Street, 4-lane (2-lane outbound, 1-lane inbound)	3,000	900	C
North Road	From 6th Street to 18th Street (Drive A), 2-lane (1-lane each way)	2,000	800	C
North Road	From 18th Street (Drive A) to West Gate, 3-lane (2-lane outbound, 1-lane inbound)	3,000	200	A
HSW Gate	4-lane (2-lane each way)	4,000	400	A

HSW = Human Systems Wing  
 LOS = level of service  
 PHV = peak-hour volume  
 VPH = vehicles per hour

Source: Earth Tech, Inc., 1998.

#### **3.2.4.1 Potable Water**

**On Base.** There are no on-base drinking water wells. Potable water is supplied to Brooks AFB by the SAWS at two locations. A 12-inch water line enters the base at the intersection of S.E. Military Drive and Goliad Road on the northeast side of the base. A 10-inch line enters the base along S.E. Military Drive on the northwest side of the base, approximately 3,600 feet east of Old Corpus Christi Road. The two lines are supplied by a 20-inch SAWS distribution line that runs along S.E. Military Drive outside of the base boundary.

Brooks AFB personnel operate and maintain approximately 114,000 linear feet (LF) of undergroundwater distribution piping and 165 fire hydrants on the base. The types of water lines in use consist of cast-iron, transite, and polyvinyl chloride (PVC) pipes. The majority of the base water distribution piping is approximately 30 to 40 years old.

Water usage in San Antonio is monitored by federal, state, and local agencies (see Section 3.5.2.2). The Edwards aquifer is the primary water source for the San Antonio area. Brooks AFB maintains and executes a Water Conservation Plan that conforms to CoSA's Aquifer Management Plan. Brooks AFB is a member of the SAWS Community Conservation Committee and the DOD Military Water Working Group.

In 1999, Brooks AFB water consumption was 152 million gallons (MG), or approximately 0.42 million gallon per day (MGD).

**Off Base.** SAWS is one of the primary potable water providers in the urbanized portion of Bexar County and is a public utility owned by the City of San Antonio.

In 1995, it served approximately 1 million people. The service area of SAWS includes most of by the City of San Antonio, several suburban municipalities, and adjacent portions of Bexar County. SAWS services approximately 260,000 individual customers.

SAWS, which obtains untreated domestic water from the Edwards aquifer, is responsible for the operation, maintenance, and repair of all facilities and equipment required for water distribution. These facilities include 4,000 miles of water lines and 85 water wells. In 1996, SAWS pumped an average of 157 MGD of potable water with a system capacity of 778 MGD.

#### **3.2.4.2 Wastewater**

**On Base.** The base sanitary sewer collection system comprises approximately 63,000 LF of sanitary sewer main. Most on-base facilities are connected to the sanitary sewer collection system through 6-inch to 24-inch gravity sewer mains. A lift station (Facility 561) was recently constructed southwest of Facility 532. A former lift station, which utilizes 2-inch-diameter or smaller pipes, is situated in the Family Campground area. The lift station is no longer in use because the sanitary sewer system in the area has been modified and currently operates as a gravity feed system. The pumps in the lift station are still in place, but no longer in service. The existing gravity lines appear to have sufficient capacity for existing flows, and many areas appear to have additional capacity available. The sewer main pipes vary in age from newly installed to approximately 40 years old.

Wastewater is discharged from Brooks AFB into the City of San Antonio's sanitary sewage collection system at two points. The 48-inch city main along Old Corpus Christi Road on the west side of the base receives the bulk of the base discharge through a 15-inch gravity flow main. A 10-inch main collects and discharges wastewater from Facilities 1184 through 1189 on the southeast side of the base into a 12-inch city main on the south side of the base. The capacity of the base's 10-inch gravity sewer line is estimated at 0.77 MGD.

The 48-inch city main on Old Corpus Christi Road has a capacity of 1.9 MGD. This line is an emergency bypass line used to divert excess wastewater flows from the city's former Rilling Road wastewater treatment plant (WWTP) to the Salado Creek WWTP. It has rarely been used by the city, and only a few local customers are serviced by this line. Studies are in progress to determine whether the 12-inch line on the southeast side of the base has any available capacity.

SAWS is the sole wastewater collection and processing source available to Brooks AFB. In 1999, Brooks AFB discharged 88.4 MG of wastewater, or approximately 0.24 MGD. Currently, the base's wastewater is routed to the Salado Creek WWTP.

**Off Base.** SAWS, in addition to being the primary potable water provider in the urbanized portion of Bexar County, is the only sewage treatment agency in the area. SAWS also provides collection and treatment services by contract to developments outside its defined service area.

SAWS is responsible for the operation and maintenance of four major WWTPs, the Leon Creek, Salado Creek, Dos Rios, and Medio Creek plants. These plants treat an average of 130 MG of wastewater per day, with a total capacity (including an excess margin required by state regulators) of 225 MGD. Treated wastewater effluent is the principal water supply for Braunig and Calaveras lakes, the two power plant cooling lakes operated by CPS of San Antonio, a city-owned utility company. SAWS is also developing facilities to distribute treated wastewater as a substitute for aquifer water for park and golf course irrigation and industrial uses within their service area.

### **3.2.4.3 Energy**

#### **Electricity**

**On Base.** CPS of San Antonio supplies electricity to Brooks AFB. Electrical power is provided by three CPS-owned overhead feeders and enters the base on the southwest corner. The three feeders are individually metered on CPS-installed and -maintained meters. CPS owns and maintains approximately 16,897 LF of overhead aluminum distribution lines that run along the west side of the base. CPS also owns and maintains the main substation, which is on the west side of the base. The primary distribution voltage on Brooks AFB is 13.2 kilovolts (kV).

Brooks AFB personnel operate and maintain the on-base electrical distribution system. All of the base-owned electrical distribution feeder lines consist of copper conductors. Approximately 70 percent of the base primary distribution system is pole-mounted, overhead service, and approximately 30 percent is underground. Much of this system is fewer than 10 years old. There is no electrical generating capacity on the base. In 1999, on-base electricity consumption was approximately 63 million kilowatt hours (MkWH), or 0.17 MkWH per day.

**Off Base.** CPS provides electricity for all of Bexar County and portions of several surrounding counties. CPS's electricity generating capability has increased during the last 10 years with completion of two units of the South Texas Project nuclear facility in 1988 and 1989, and the addition of a third coal unit at the Calaveras Lake Facility in 1992. Approximately 1,200 megawatts (MW) of generating capacity were added by these units, bringing the total CPS capability to its current level of approximately 4,500 MW. Peak demand on the electrical system during summer 1997 was 3,448 MW, an all-time record. This represents an increase of 2.7 percent over the 1996 peak demand.

#### **Natural Gas**

**On Base.** Natural gas is transported to Brooks AFB through a gas distribution piping system owned by CPS. Two 4-inch gas lines enter the base. One is on the west side of the base along Old Corpus Christi Road and enters Brooks AFB approximately 1,100 feet south of S.E. Military Drive. The other line enters the northeast corner of the base at the intersection of S.E. Military Drive and Goliad Road.



Brooks AFB personnel operate and maintain approximately 14 miles of on-base natural gas lines. Approximately 39 percent of the government-owned gas distribution line is 2 inches in diameter, 39 percent is 3 inches in diameter, and the remaining 22 percent is 4 inches in diameter. In 1997, on-base natural gas consumption was approximately 280 million cubic feet (MCF), or 0.77 MCF per day.

By 1998, much of the base-owned gas distribution pipes were over 50 years old, constructed of steel, and did not have cathodic protection. A project is in progress to replace deficient natural gas distribution pipes. Phase I of this project was completed in November 1998. Under this phase of the project, 65 percent of the steel lines were replaced with PVC pipes. Phase I included replacement of the gas lines in the 1100s area (the area containing Facilities 1162 through 1193 bounded by Welch, Chennault, Hawks, and Maitland roads) and the central portion of the base. The second phase of the project has been programmed for fiscal year 2003 and would include replacing the gas lines in the SAM-100 series buildings and the MFH areas.

Brooks AFB also has one large central heating and cooling distribution plant. This plant, situated in Facility 165, provides year-round heating and cooling services to 17 on-base facilities through a looped-chilled water distribution system and a steam and condensate return line system. These systems are routed through an underground utility tunnel to the facilities served. The plant and tunnel were constructed in 1959.

In 1997/1998, a 200-horsepower (hp) steam boiler and two 600-hp steam boilers were installed to replace the previous boilers. These boilers normally use natural gas, but if the natural gas supply is interrupted, the boilers are equipped to run on #2 fuel oil. There is one aboveground 10,000-gallon, fuel oil tank at the facility. The new 200-hp boiler is rated at 6,900 pounds per hour, and the 600-hp steam boilers are rated at 20,700 pounds per hour, for a total steam-generating capacity of 48,300 pounds per hour. The normal operating pressure is 125 pounds per square inch gauge (psig), and the average daily steam demand is 27,600 pounds per hour. On average, the boilers require 5,000 gallons of "make-up" water and consume 104,000 cubic feet of gas per day.

There are three 650-ton and three 625-ton, electric-driven centrifugal chillers in the central cooling plant. The total chilled water capacity of the plant is 3,825 tons, and the average daily demand is 2,500 tons. In addition to the central cooling plant, there are individual chiller plants at Facilities 930 (Air Force Research Laboratory) and 578 (Human Resources Directorate). These chillers are dedicated to those facilities and are operated year-round.

**Off Base.** Natural gas for Bexar County and portions of several surrounding counties is provided by CPS. According to historical usage data, residential customer growth has been offset by a decline in average consumption per customer; therefore, total residential consumption remains essentially constant. Approximately one-third of the total natural gas within the ROI is used for heating. Total natural gas consumption was 26.8 billion cubic feet in 1997.

### **3.3 HAZARDOUS MATERIALS MANAGEMENT**

Hazardous materials management activities at Brooks AFB are governed by specific environmental regulations. For the purpose of the following discussion, the term hazardous materials refers to those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601 et seq., as amended. In general, this includes substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment when released. Hazardous materials, storage tanks, pesticide usage, radioactive materials, and ordnance are discussed in this section.

A radon screening was conducted at Brooks AFB in 1991 according to the Air Force Radon Assessment and Mitigation program guidance, which is similar to U.S. EPA mitigation action level guidance. The survey included MFH units and unaccompanied housing. The survey results were below the U.S. EPA's recommended mitigation level of 4.0 picocuries per liter (pCi/l) (U.S. Air Force, 1993). Because radon is not an issue at Brooks AFB, it will not be discussed further in this analysis.

The ROI encompasses all geographic areas that are exposed to the possibility of a release of hazardous materials and comprises only property contained within the existing base boundaries.

#### **3.3.1 Hazardous Materials Management**

Hazardous materials commonly utilized at Brooks AFB for laboratory and industrial operations include solvents, corrosives, paints, thinners, pesticides, compressed gases, laboratory chemicals, motor fuels, calibrating fluids, hydraulic fluids, and petroleum, oil, and lubricants (POL). Under 10 U.S.C. 2692, Storage, Treatment, and Disposal of Nondefense Toxic and Hazardous Materials, only DOD or a military member assigned to MFH may store, treat, or dispose of toxic or hazardous materials on DOD installations, unless a statutory exception applies to a non-DOD entity's activities.

A Hazardous Materials Emergency Response Plan has been prepared in accordance with Air Force Instruction (AFI) 32-7043 guidance. The plan also complies with AFI 32-4002, Hazardous Materials Emergency Planning and Response Compliance; U.S. EPA spill prevention, control, and countermeasures requirements; Emergency Planning and Community Right-to Know Act (EPCRA); and Occupational Safety and Health Administration (OSHA) requirements. The plan provides guidance for the identification of possible hazardous material sources, the discovery and reporting of a hazardous materials release, and procedures to follow after a release has occurred.

Brooks AFB has also prepared an Oil and Hazardous Substance Spill Prevention and Response Plan that provides guidance and assigns responsibilities to prevent and respond to oil and hazardous substance discharges. Spill response is conducted by the base Fire Protection Flight, and inspections of facilities are

conducted by the Fire Protection Flight, Safety, and Bioenvironmental Engineering Services (U.S. Air Force, 1997b).

Transportation of hazardous materials is regulated by the federal Department of Transportation (DOT) under the Hazardous Materials Transportation Act (HMTA), 49 CFR Parts 107, 171-179.

### **3.3.2 Storage Tanks**

Underground storage tanks (USTs) are subject to federal regulations within the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6991 et seq., and U.S. EPA implementing regulations 40 CFR Part 280. These regulations were mandated by the Hazardous and Solid Waste Amendments of 1984. The state regulates USTs under 31 Texas Administrative Code (TAC) 334 Subchapter A; the regulations are enforced by the Texas Natural Resource Conservation Commission (TNRCC). The TNRCC also regulates storage tanks that are considered a stationary source of volatile organic compounds (VOCs) under 31 TAC 115.112. Additionally, storage tanks are subject to regulations under the Clean Water Act (CWA) (33 U.S.C. 1251-1578) oil pollution provisions (specifically, 40 CFR Part 112).

The state manages aboveground storage tanks (ASTs) having a capacity of 1,100 gallons and greater under 31 TAC 334 Subchapter F; this regulation is enforced by the TNRCC. ASTs are also managed using the Flammable and Combustible Liquids code provisions of the National Fire Protection Association guidelines.

The base currently manages three active USTs. These tanks, situated at Facility 706 (service station), contain gasoline and are regulated by the state. One UST, a 100-gallon tank at Building 698, has been closed in place. The tank, which formerly contained hydraulic oil, has been filled with concrete slurry. In 1994, a release of diesel fuel was identified during removal of two USTs at Building 165. The release is being addressed as a UST compliance issue under state regulations. Based on physical observation, photoionization detector readings, and analytical results of samples collected from the UST excavation pit at the time of removal in December 1994, it was determined that the site was contaminated. Total petroleum hydrocarbons were detected in samples collected from the excavation pit at levels exceeding the TNRCC action level. The contaminated soil was removed and a remediation system was installed. Remediation of the site is complete and closure documentation has been submitted to the TNRCC for approval. The TNRCC has not responded to the closure documents to date; however, it is anticipated that the TNRCC will concur with closure of the site.

There are 28 active ASTs. Of the active ASTs, four are larger than 1,100 gallons and are regulated. Two of these tanks contain diesel and two contain gasoline. Of the 28 ASTs, 22 are day tanks associated with generators. The remaining two ASTs contain used oil. Table 3.3-1 lists the ASTs, including day tanks, associated with generators.

**Table 3.3-1. Aboveground Storage Tanks**

Building Number	Contents	Capacity (gallons)
100	Diesel	150
110	Diesel	220
125	Diesel	220
135	Diesel	150
140	Diesel	200
150	Diesel	220
160	Diesel	300
165	Diesel	185
165	Diesel	10,000
170	Diesel	130
175E/W	Diesel	260
180	Diesel	150
185	Diesel	220
531	Diesel	185
618	Diesel	75
619	Diesel	60
640	Diesel	50
661	Diesel	100
706B	Used Oil	550
749	Diesel	185
808	Diesel	60
930	Diesel	120
1108/1128	Diesel	10,000
1108/1128	Gasoline	10,000
1108/1128	Gasoline	3,000
1157	Used Oil	400
1176	Diesel	25
1179	Diesel	150

Oil/water separators (OWSs) are flow-through treatment systems used to separate oils, fuels, and grease from water prior to discharge. There are four active OWSs on Brooks AFB (U.S. Air Force, 1998a). Table 3.3-2 lists the OWSs on Brooks AFB.

**Table 3.3-2. Oil/Water Separators**

Building Number	Building Description
644	Golf Course Maintenance Building
1107	Wash Rack (Military)
1164	Civil Engineer Maintenance Shop
1165	Wash Rack (Civilian)

### **3.3.3 Pesticide Usage**

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. 136-136y, regulates the registration and use of pesticides. Pesticide management activities are subject to federal regulations contained in 40 CFR Parts 162, 165, 166, 170, and 171. All pest management activities at Brooks AFB are conducted in accordance with Air Force instructions and Environmental Management Directorate recommendations, which follow FIFRA regulations.

Implementation of the Pest Management Program at Brooks AFB is the responsibility of the Base Civil Engineer. Brooks AFB maintains an Integrated Pest Management Plan as required by DOD Directive 4150.7 and as outlined in the Armed Forces Pest Management Board's Technical Information Memorandum No. 18. Pest management practices include inspecting and controlling, on an as-needed basis, pests that affect households, structures, public health, and ornamental plants. Pesticide application is the responsibility of the Pest Management Professionals; herbicide application is typically performed by the Grounds Maintenance Shop. A Memorandum of Agreement between the Texas Department of Agriculture and DOD allows DOD-certified pesticide applicators to apply pesticides on federally owned or controlled land. All on-base pesticide applications, except for household use, are conducted by certified applicators.

Pesticides and herbicides used on the golf course are stored in the golf course maintenance building; application is the responsibility of the Golf Course Maintenance Shop. Pesticides applied by contractors would be brought onto the base as needed. Records of pesticide applications, including applications on the golf course, are maintained by Pest Management Professionals. Small quantities of pesticides intended for household use are available in the commissary, exchange sales store, and self-help store.

### **3.3.4 Radioactive Materials and Waste**

The U.S. EPA, the Nuclear Regulatory Commission, and the Department of Energy have overlapping authority on the disposal of radioactive materials. Radioactive waste is classified as a high-level waste if it contains transuranic waste greater than 100 nanocuries per gram (nCi/g); low-level radioactive waste (LLRW) includes those that emit less than 100 nCi/g. Disposal requirements for radioactive waste are provided in 10 CFR Parts 20.301-20.401, AFI 40-201 (Management of Radioactive Material in the U.S. Air Force), and Air Force Technical Order 00-110N2.

Management of radioactive materials and waste at Brooks AFB is the responsibility of the individual units to which the materials are issued/permitted, with oversight by AFIERA/Radiation Surveillance Division, Health Physics Branch (SDRH), Air Force Radioactive and Mixed Waste Office (AFRMWO) and the Radiation Safety Officer (RSO), 311 MDS/SGPB. AFIERA/SDRH (AFRMWO), in conjunction with the RSO, also establishes management procedures for radioactive material storage, disposal, and spill responses.

Activities at Brooks AFB require the use and storage of a number of radioactive materials for a variety of purposes, including equipment calibration, medical diagnosis and treatment, and laboratory testing, analysis, and research activities. Brooks AFB holds generally licensed and specific permits to store radioactive materials. These permits are applicable for the entire base; individual facilities are covered under the base permits, as long as the permitted storage quantity for each material is not exceeded.

Brooks AFB has a permit to store consolidated excess radioactive commodities. All LLRW generated on base is taken to Facility 175, Facility 1181, Facility 1191, or storage sheds next to the former airfield. The LLRW is picked up for off-site disposal by a private contractor.

A single burial of radioactive waste occurred within the boundaries of IRP Site LF008. This site is discussed further in Section 3.4.2.2, Installation Restoration Program Sites.

### **3.3.5 Ordinance**

Historically, the Brooks AFB mission has not required the storage or use of large quantities of ordnance. The security police operations building (Facility 1176) contains an armory used for storage of small quantities of ammunition, tear gas, and weapons-cleaning materials.

Four former skeet ranges and two former small firearms ranges have been identified at Brooks AFB. The ranges are associated with potential lead and hydrocarbon (skeet ranges only) contamination. These sites are being investigated as an area of concern (AOC) under the IRP and are discussed in Section 3.4.2, Hazardous Waste Management.

## **3.4 SOLID AND HAZARDOUS WASTE MANAGEMENT**

The following sections address hazardous and solid waste management at Brooks AFB and within the region.

### **3.4.1 Solid Waste Management**

RCRA of 1976 is the federal law governing the disposal of solid waste. Subtitle D of this Act, as amended, establishes federal standards and requirements for state and regional authorities with respect to solid waste disposal. The objectives of Subtitle D are to assist in developing and encouraging environmentally sound methods for the disposal of solid waste that maximize the utilization of valuable resources recoverable from solid waste.

The Solid Waste Disposal Act (SWDA) of 1965, as amended, requires that federal facilities comply with all federal, state, interstate, and local requirements concerning the disposal and management of solid waste. These requirements include permitting, licensing, and reporting.

In addition, Executive Order (EO) 12873, Federal Acquisition, Recycling and Waste Prevention, in concert with RCRA and the SWDA, directed federal agencies to set goals for solid waste prevention and recycling. The Air Force Pollution Prevention Program set the goals of reducing the quantity of solid waste disposed of in landfills by 10 percent (1993), 30 percent (1996), and 50 percent (1997) from the 1992 baseline.

The Texas SWDA established the goal of 40 percent for recycling of the state's municipal solid waste stream, and the TNRCC established the goal of composting 15 percent of the state's municipal solid waste stream.

This section addresses collection, storage, and disposal of solid waste at Brooks AFB and within the City of San Antonio. Solid waste is considered to be nonhazardous trash, rubbish, garbage, bulky waste, liquids, or sludge generated by associated operations and activities. Recycling and resource recovery are also described in this section, as these activities are considered a form of solid waste management.

**On Base.** There are no active sanitary landfills on base. Solid waste generated by activities at Brooks AFB is picked up by a private contractor and taken to the Tessman Sanitary Landfill, operated by BFI. In 1999, approximately 3.1 tons per day were disposed of in the Tessman Sanitary Landfill. Recyclables are also taken off base and sorted by a private contractor. In addition to the Tessman Sanitary Landfill, there are two private landfills within the ROI that may be contracted by the base for future solid waste disposal. Table 3.4-1 lists the annual quantities of solid waste generated at Brooks AFB from 1997 through 1999.

**Table 3.4-1. Brooks AFB Annual Solid Waste Generation, 1997-1999**

	1997		1998		1999	
	Tons/ Year	Average Tons/Day	Tons/ Year	Average Tons/Day	Tons/ Year	Average Tons/Day
Disposal	1,169	3.2	1,180	3.2	1,140	3.1
Recyclables	288	0.8	387	1.1	458	1.3
Total Solid Waste Generated	1,457	4.0	1,467	4.3	1,598	4.4
Recycling Rate (percent)		19.8		24.7		28.6

Brooks AFB has implemented a Qualified Recycling Program (QRP) to maximize cost effectiveness, cost avoidance, and cost reduction through source reduction/reuse/recycling. The purpose of the QRP is to assist Brooks AFB in meeting the DOD/Air Force/state of Texas goals for solid waste generation and disposal.

**Off Base.** The landfill owned and operated by the City of San Antonio was closed in 1993. Currently, there are three private disposal facilities contracted by the city to handle solid waste disposal. These landfills, Tessman Sanitary Landfill (managed by BFI), Covell Gardens Disposal Facility (managed by Waste Management Company), and Buda Disposal Facility (managed by TDS, Inc.), are described below.

**Tessman Sanitary Landfill.** This is a 265-acre solid waste management facility with potential for expansion to 929 acres. This facility is managed by BFI. Based on 1997 projections, the Tessman Sanitary Landfill has a life expectancy through 2065 with the proposed expansion plan. Currently, approximately 1,300 to 1,600 tons per day of solid waste are disposed of in this landfill.

**Covel Gardens Disposal Facility.** Covel Gardens Recycling, Processing, and Disposal Facility is a 230-acre waste disposal facility managed by Waste Management Company. This facility is permitted for TNRCC Class 1 industrial nonhazardous and special waste, TNRCC Class 2 industrial and special waste, and Type I municipal solid waste. The facility's permit for bioremediation of petroleum impacted soils is pending. The total permitted disposal capacity is 9 million tons, of which 2 million tons are dedicated for Class I industrial nonhazardous waste. Based on the projected disposal rate, it has a life expectancy through 2018. Currently, this facility accepts approximately 4,000 tons of solid waste per day.

**Buda Disposal Facility.** Buda Recycling, Processing, and Disposal Facility has a total disposal capacity of 48 million tons and is managed by TDS, Inc. Construction debris is also recycled at this facility. Based on 1997 projections, the Buda Disposal Facility has a life expectancy through 2056. Currently, this facility accepts approximately 1,500 to 2,000 tons of solid waste per day.

The city owns and operates a transfer station in the north-central portion of San Antonio. This station processes and transfers approximately one-third of the city's residential refuse to the Buda Disposal Facility.

The average annual solid waste generation rate within the ROI is 1.68 tons per household. Of this total, approximately 1.66 tons are disposed of in landfills and 0.2 ton is recycled. Table 3.4-2 shows solid waste generation rates in the ROI from 1996 to 1998.

**Table 3.4-2. Annual Solid Waste Generation, 1996-1998 (tons per year)**

Fiscal Year Ended on September 30	1996-1997	1997-1998 <sup>(a)</sup>
Curbside Waste hauled by City	301,600	312,780
Curbside Waste hauled by Contractors	17,450	25,788
Bulky Item (hauled by City, 3 times/year)	80,000	63,684
Recycling Amount by City	26,100	24,958
Recycling Amount by Contractors	1,970	1,442

Note: (a) Estimated year-end.

### 3.4.2 Hazardous Waste Management

Hazardous waste management activities at Brooks AFB are governed by specific environmental regulations. For the purpose of the following discussion, the term



hazardous waste refers to those substances defined by CERCLA, 42 U.S.C. 9601 et seq., as amended; and the SWDA, as amended by RCRA, 42 U.S.C. 6901-6992, as amended. In general, this includes substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment when released. Hazardous waste, IRP sites, asbestos, medical/biohazardous waste, and lead-based paint are discussed in this section.

A basewide survey has been conducted to identify all on-base polychlorinated biphenyl (PCB) transformers. The disposal of PCBs is regulated under the federal Toxic Substances Control Act (TSCA) (15 U.S.C. Section 2601 et seq., as implemented by 40 CFR Part 761), which banned the manufacture and distribution of PCBs, with the exception of PCBs used in an enclosed system. By federal definition, PCB equipment contains 500 parts per million (ppm) PCBs or more; whereas PCB-contaminated equipment contains PCB concentrations equal to or greater than 50 ppm, but less than 500 ppm, and PCB items contain from 5 to 49 ppm PCBs. The TSCA regulates and the U.S. EPA enforces the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB equipment than for PCB-contaminated equipment. All PCB-contaminated transformers, capacitors, and switches on Brooks AFB were removed by June 1992 and replaced with non-PCB-containing equipment. Brooks AFB is considered PCB-free (Human Systems Center, 1997). In their role as a center for risk analysis, AFIERA receives items from Air Force and DOD clients to be sampled for possible PCB content. Following sampling and analysis, PCB-containing items are then disposed of in accordance with TSCA regulations.

The ROI encompasses all geographic areas that are potentially exposed to a release of hazardous waste. The ROI for known contaminated sites is within the base boundaries, with the exception of the groundwater contamination plume associated with Fire Protection Training Area (FPTA) 2 (IRP Site FT002), which originates in the southwest corner of the base and extends off base to the south. Specific geographic areas affected by past and current hazardous waste operations, including clean-up activities, are presented in the following sections.

#### **3.4.2.1 Hazardous Waste Management.**

In 1976, the federal government issued regulations for hazardous waste management in RCRA. The U.S. EPA has authorized the TNRCC to administer its hazardous waste program in Texas. The TNRCC is now the lead agency for regulation interpretations, waste classification decisions, RCRA-permitted facility decisions, and implementation of hazardous waste regulations. State-authorized hazardous waste programs approved under RCRA by the U.S. EPA are authorized to administer the federal rules. State-authorized programs must be equally or more stringent than the federal regulations. The U.S. EPA and the TNRCC have the authority to inspect and enforce these regulations; however, enforcement is based on TNRCC hazardous waste rules. The state hazardous waste regulations are outlined in 30 TAC 335, Texas Hazardous Waste Management Regulations.

Hazardous waste generated at Brooks AFB during routine vehicle maintenance, base support operations, and laboratory research includes solvents, paint waste, photochemical waste, batteries, biohazards, laboratory waste, off-specification chemicals, and waste generated from IRP site remediation. Hazardous waste generated on base is collected at initial accumulation points (IAPs). Up to 55 gallons of a hazardous waste, or 1 quart of an acutely hazardous or extremely hazardous waste, may be accumulated at an IAP at or near the point of generation. Once one of the above criteria has been met at the IAP, the waste is moved to the accumulation point at the Central Accumulation Facility (Facility 1135), where it may be stored for no longer than 180 days. Before 180 days elapse, hazardous waste is shipped off base for treatment and disposal. Brooks AFB is a small-quantity generator of hazardous waste with no permitted long-term hazardous waste storage facilities (U.S. Air Force, 1998a). In accordance with 10 U.S.C. 2692, Storage, Treatment, and Disposal of Nondefense Toxic and Hazardous Materials, only DOD or a military member assigned to MFH may store, treat, or dispose of toxic or hazardous materials on DOD installations, unless a statutory exception applies to a non-DOD entity's activities.

The Environmental Management Directorate is responsible for hazardous waste management at the base. In accordance with RCRA and TNRCC regulations, Brooks AFB has implemented a Hazardous Waste Management Plan and thus has complied with federal, state, and local regulatory requirements.

#### ***3.4.2.2 Installation Restoration Program Sites.***

The IRP is an Air Force program that identifies, characterizes, and remediates past environmental contamination on Air Force installations. Although widely accepted at the time, procedures followed prior to the mid-1970s for managing and disposing of waste often resulted in contamination of the environment. The program has established a process to evaluate past disposal sites, control the migration of contaminants, and control potential hazards to human health and the environment. Section 211 of the Superfund Amendments and Reauthorization Act (SARA), codified as the Defense Environmental Restoration Program (DERP), of which the Air Force IRP is a subset, ensures that DOD has the authority to conduct its own environmental restoration programs. IRP activities are coordinated with U.S. EPA and appropriate state agencies.

Ongoing activities at identified IRP sites may delay or limit some proposed land uses and potential development at or near the sites. Future land uses and development on a site-specific level may be, to a certain extent, restricted by the severity of contamination or level of remediation effort at these IRP sites. Reasonably foreseeable land use and development constraints are discussed in this EIS. Regulatory review, as required by Air Force programs, will also ensure that any site-specific land use and development limitations are identified and considered.

The IRP process began at Brooks AFB with publication of the Phase I Records Search in March 1985, which identified 17 sites. Of these sites, nine were initially identified as potentially hazardous and were recommended for further investigation. These nine sites were investigated during a two-stage remedial

investigation (RI)/feasibility study (FS) conducted between 1987 and 1990. Two additional sites (Sites OT001 and SS010) were added to the IRP to bring the total number of IRP sites to 11. The Central Accumulation Site (CAS) (Site OT001) was added to the IRP during Stage 2 of the RI/FS. Additionally, the PCB spill site at Facility 100 (Site SS010), eliminated from further consideration during the Phase I Records Search, was added to the IRP. A trichloroethylene (TCE) groundwater contamination plume is associated with FPTA 2 (Site FT002) in the southwest corner of the base. This plume has migrated off base, and monitoring wells have been installed on and off base to delineate its downgradient extent. Table 3.4-3 lists the 11 IRP sites and provides a brief description of each site and the site's status. The table also indicates what type of development may be suitable on property associated with these sites based on closure standards. Figure 3.4-1 depicts the location of the IRP sites.

Of the 11 IRP sites, 9 sites (OT001, LF003, LF004, LF005, LF006, LF008, OT009, SS010, and WP011) are closed, with no further action decisions approved by TNRCC. IRP sites are closed under three risk reduction standards (RRS). Sites closed under RRS #1 include those areas where contamination that has not been identified above background or contaminant levels have been remediated to background levels. Sites closed under RRS #2 include those areas where contamination has been identified below action levels or the site has been remediated to health-based risk standards for industrial or residential uses. Sites closed under RRS #3 include those areas where contamination has been identified above risk standards for industrial or residential uses and post-closure care or corrective measures are required. A site can be closed under RRS #3 and not require post-closure care; many of the landfills at Brooks AFB fall under this standard. The following paragraphs briefly describe the types of development that are compatible with property associated with IRP sites.

Property associated with closed IRP Sites LF003, LF004, LF005, LF006, OT009, SS010, and WP011 meets the residential cleanup standards and may be suitable for residential and nonresidential development. Property associated with closed IRP Sites OT001 and LF008 meets industrial cleanup standards and is suitable for nonresidential development only. Any development on property associated with IRP Site LF008 must be approved by the TNRCC.

One site (LF007) is undergoing long-term groundwater monitoring. A closure report was submitted to the TNRCC; the TNRCC concurred with the findings of the report. However, groundwater monitoring is required for 3 years. The property associated with LF007 is suitable for nonresidential development. Restrictions, including no disturbance of the landfill cover, no development of water wells or drilling for shallow groundwater, and maintenance of the landfill cover, are in place for the site. The remaining site (FT002) has been divided into three operable units (OUs). The original boundaries of the site that were being investigated as IRP Site FT002 have been replaced by the boundaries of the three OUs. OU 1 comprises soils from 0 to 2 feet in depth. This OU has been closed and the 0.33-acre site has been deed recorded. Property associated with OU 1 is suitable for nonresidential development; no post-closure care, engineering controls, or institutional controls are required at the site. OU2 comprises the groundwater associated with the TCE plume; OU 3

**Table 3.4-3. Summary of IRP Sites and AOCs****Page 1 of 4**

Site Number	Site Name	Status	Description
OT001	Building 1020/1030 (Central Accumulation Site)	Remediation complete; NFA decision approved	Drummed hazardous and non-radioactive waste was stored prior off-base disposal. Drum handling platforms had floor drains connected to concrete-lined sumps. 0.5 acre in southwest portion of base. Site has been closed under RRS #2 and deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with IRP Site OT001 is suitable for nonresidential development.
FT002	Fire Training Area #2	Final remedial action installed; RAO status; system scheduled to be in operation through 2010	Site used for airplane crash fire training from 1945 to 1960 in southwestern area of base. Waste oil, spent solvents, and fuel were ignited and then extinguished with water. A TCE plume, which has migrated off base, is associated with the site. The site has been divided into three OUs. OU 1 comprises soils from 0 to 2 feet in depth; OUs 2 and 3 comprise groundwater within and outside the base boundary, respectively. OU 1 (0.33 acre) has been closed under RRS #2 (closure/remediation of the site to health-based standards/criteria for industrial or residential standards) and deed recorded. No post-closure care, engineering controls, or institutional controls are required for OU 1. The property associated with OU 1 is suitable for nonresidential development. Remediation is ongoing for groundwater; residential or nonresidential development may occur on the property associated with OU 2.
LF003	Landfill #1 (Site 3)	NFA decision approved	Landfill used from 1930s to 1942. 1.3 acres on golf course. Garbage, trash, and construction debris burned and covered. Site has been closed under RRS #3 (post-closure care not required) and deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with LF003 may be suitable for residential or nonresidential development.
LF004	Landfill #2 (Site 4)	NFA decision approved	Landfill used from 1943 to late 1940s. 3.9 acres in north-central base area. Packaging material, paper products, scrap lumber, and garbage. Site has been closed under RRS #3 (post-closure care not required) and deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with LF004 may be suitable for residential or nonresidential development.

**Table 3.4-3. Summary of IRP Sites and AOCs****Page 2 of 4**

Site Number	Site Name	Status	Description
LF005	Landfill #3 (Site 5)	NFA decision approved	Landfill used from 1940s to 1953. 1.9 acres on golf course. Paper, packing materials, scrap lumber, and possibly waste oil, spent solvents, and paint thinners. Site has been closed under RRS #3 (post-closure care not required) and deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with LF005 may be suitable for residential or nonresidential development
LF006	Landfill #4 (Site 6)	NFA decision approved	Landfill used from 1953 to 1962. 2.6 acres on golf course. Paper, packing materials, scrap lumber, and possibly waste oil, spent solvents, and paint thinners. Site has been closed under RRS #3 (post-closure care not required) and deed recorded. No post-closure care, engineering controls, or institutional controls required. The property associated with LF006 may be suitable for residential or nonresidential development.
LF007	Landfill #5 (Site 7)	Long-term monitoring in progress	Landfill used from 1962 to 1970. 25.4 acres in south-central base area. Glassware, used medical supplies, packing material, paper, paints, thinners, unrinsed pesticide containers, oils, solvents, and contaminated fuels. TNRCC has concurred on closure report for site; however, groundwater monitoring is required. Post-closure care, engineering controls, or institutional controls are required. Required post-closure care and controls at the site include no disturbance of the landfill cover, no development of water wells, no drilling for shallow groundwater, maintenance of the landfill cover, and limited groundwater monitoring. The property associated with LF007 may be suitable for nonresidential development.

**Table 3.4-3. Summary of IRP Sites and AOCs****Page 3 of 4**

Site Number	Site Name	Status	Description
LF008	Landfill #6 (Site 8)	NFA decision approved	Landfill used from 1971 to 1985. 15 acres in southeast corner of base. Solid waste, shop and laboratory waste, contaminated fuels, and possible waste solvents and oils. Site was a permitted landfill; closed under solid waste closure standards. Restrictions for the site include maintenance of the landfill cover, limited groundwater well development, and approval by the TNRCC prior to ground-disturbing activities on the site. No residential development is to occur on property associated with LF008; any industrial development must be approved by the TNRCC. A single burial of radioactive waste occurred within this site.
OT009	Liquid Sludge Disposal Area #2/ Fire Training Area #3	NFA decision approved	Grass fire training area (3.8 acres) in central portion of base by flightline was used from 1962 to 1963. MOGAS, diesel, and/or possible waste oil and spent solvents were ignited. Also used for liquid fuel sludge disposal in 1960s. Site has been closed under RRS #2 and deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with OT009 is suitable for residential or nonresidential development.
SS010	PCB Transformer Oil Contamination	Remediation complete; NFA decision approved	PCB transformer oil spill occurred in basement of Facility 100 in 1984; 17.5 tons of soil were removed. Site has been closed under RRS #2 and deed recorded. 0.84 acre of property were deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with SS010 is suitable for residential or nonresidential development.
WP011	Liquid Fuel Sludge Disposal Area #1	NFA decision approved	Fuel sludge disposed of from 1950 to 1960. Exact location unknown. According to interviews, the site was believed to be in north-central area of base near LF004. Assessment was completed and no evidence of disposal or contamination was identified. No deed restrictions required. The property associated with WP011 is suitable for residential or nonresidential development.

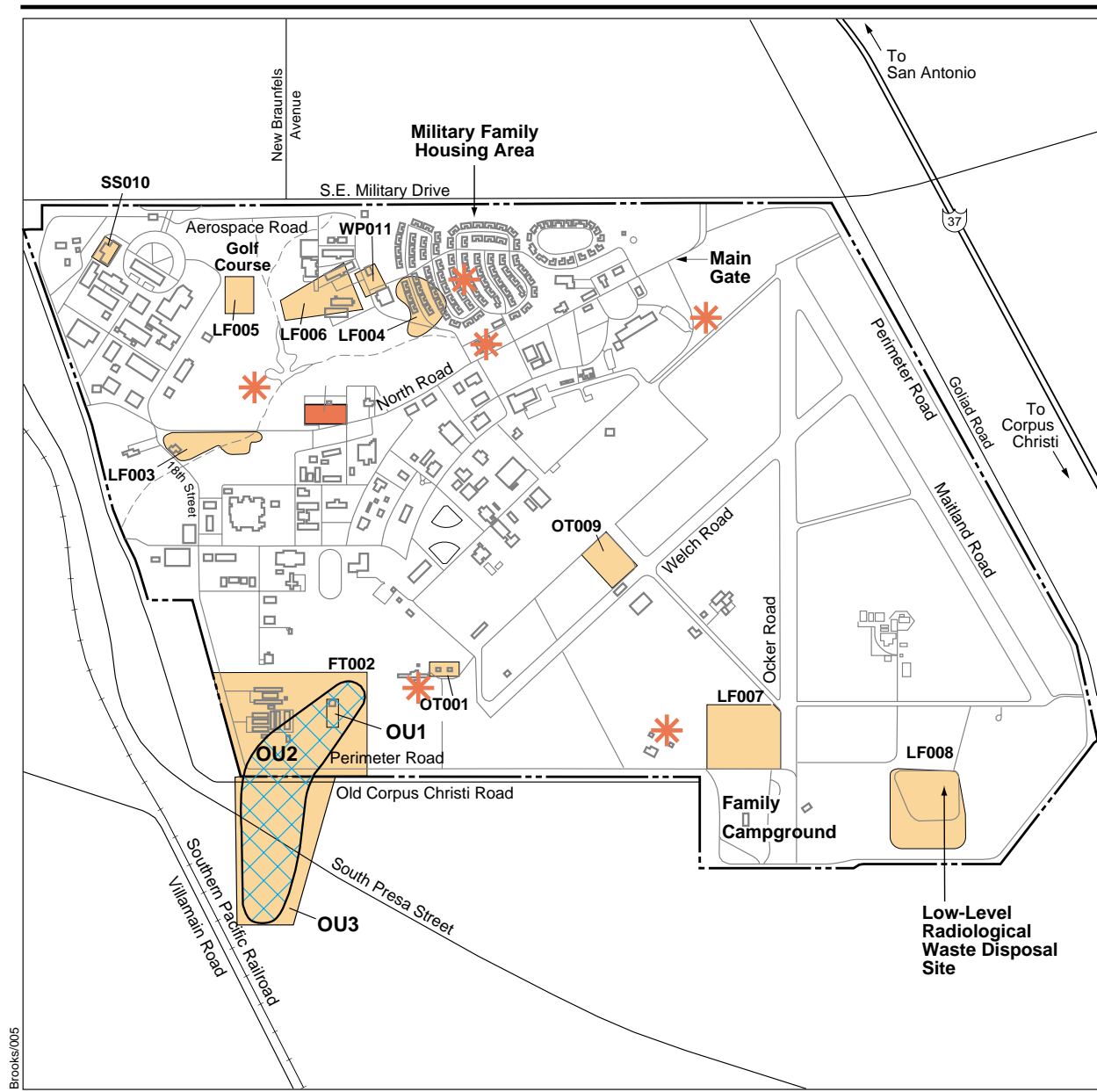
**Table 3.4-3. Summary of IRP Sites and AOCs**

**Page 4 of 4**

Site Number	Site Name	Status	Description
AOC Buildings 696-698	CE/Golf Course Maintenance Areas	Investigation complete; NFA decision approved	Former Civil Engineering and Golf Course Maintenance areas until 1996. Potential hazardous waste releases from waste oils, solvents, paints, pesticides, and fuels. Site has been closed under RRS #2 and 2.98 acres have been deed recorded. No post-closure care, engineering controls, or institutional controls are required. The property associated with AOC Buildings 696-698 is suitable for nonresidential development.
AOC Former Skeet Ranges and Small Firearms Ranges	Former Skeet Ranges and Small Firearms Ranges	PA/SI planned for August 2000 through February 2001; cleanup (if necessary) planned to begin in March 2001	Four former skeet range locations and two former small firearms ranges have been identified as potential areas of contamination. Potential hazardous waste at the sites includes lead and hydrocarbons.

AOC	=	area of concern
CE	=	Civil Engineering
IRP	=	Installation Restoration Program
MOGAS	=	motor gasoline
NFA	=	no further action
OU	=	operable unit
PA	=	preliminary assessment
PCB	=	polychlorinated biphenyl
RAO	=	remedial action operation
RRS	=	Risk Reduction Standard
SI	=	site investigation
TCE	=	trichloroethylene
TNRCC	=	Texas Natural Resource Conservation Commission

Source: U.S. Air Force, 1998a, 2000.



#### LEGEND

- IRP Site
- AOC Buildings 696-698
- TCE Plume
- Approximate Location of AOC Associated with Former Skeet and Small Arms Firing Ranges
- Brooks Air Force Base Boundary
- Interstate Highway
- 

Source: U.S. Air Force, 1998a, 2000.

#### IRP and AOC Site Locations

Figure 3.4-1



comprises the groundwater associated with the TCE plume outside the base boundary. OUs 2 and 3 are undergoing remediation. Property associated with OU 2 could be developed for residential or nonresidential purposes; however, restrictions for groundwater extraction and drilling would be required. A pump-and-treat system has been installed at the site and is operational. The system is scheduled to be operational until 2010, with 5 years of groundwater monitoring to follow.

In addition, IRP Site LF008 contains an area where a single disposal of radioactive waste occurred. In 1974, seven 55-gallon drums containing animal cadavers that contained less than 70 microcuries of Iodine-125 were buried within the boundaries of IRP Site LF008 (see Table 3.4-1 and Figure 3.4-1). The site was marked and fenced until 1978, when the site was decommissioned. At the time the site was decommissioned, the level of radioactivity associated with the site was less than 1 picocurie (less than one-millionth the quantity requiring licensing), which poses no potential hazard to human health or the environment. Groundwater monitoring has been conducted for areas surrounding IRP Sites FT002, LF007, and LF008. Levels of radioactive materials in the groundwater have not been identified above background concentrations.

Two AOCs have been identified within Brooks AFB (see Table 3.4-1). Investigation is complete at one of the AOCs (Facility 696-698); a no further action decision has been approved by TNRCC, and the site has been closed out. The property associated with AOC Buildings 696-698 is suitable for nonresidential development. The base recently identified an AOC at four former skeet ranges and two former small firearms ranges situated throughout the base. Investigation of the AOC is scheduled to begin in summer 2000 and is scheduled for completion by February 2001. Cleanup of the site, if necessary, is scheduled to begin by March 2001. Potential restrictions on property will be determined upon completion of site investigations and cleanup. Because investigation of this AOC is in its preliminary stages, site boundaries for the skeet and small firearms ranges have not been determined, and maps depicting the boundaries were not available. Figure 3.4-1 depicts the locations of the AOCs. A general location has been provided for the skeet and small firearms ranges.

#### **3.4.2.3 Asbestos.**

Asbestos-containing material (ACM) and ACM abatement is regulated by the U.S. EPA and the OSHA. Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the Clean Air Act (CAA), which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). The NESHAP regulations (40 CFR Part 61 Subpart M) address the renovation or demolition of buildings with ACM. Under the NESHAP, the owner of a structure must, prior to renovation or demolition of buildings with ACM, provide notice to the regulator with CAA authority (either the U.S. EPA or its state counterpart). The TSCA 15 U.S.C. 2601 et seq., and the Asbestos Hazard Emergency Response Act (AHERA) P.L. 99-519 and P.L. 101-637, provide the regulatory basis for managing ACM in kindergarten through twelfth grade school buildings. AHERA and OSHA regulations cover worker protection for employees who work around or remediate ACM. The state manages asbestos under the

Texas Asbestos Health Protection Rules (Sections 295.31-295.71), which are administered by the Texas Department of Health.

Renovation or demolition of buildings with ACM can release asbestos fibers into the air. Asbestos fibers could be released due to disturbance or damage from various building materials such as pipe and boiler insulation, acoustical ceilings, electrical wire insulation, sprayed-on fireproofing, and other material used for soundproofing or insulation. The current Air Force practice is to manage or abate ACM in active facilities and abate any ACM that has been identified as a hazard to human health, following regulatory requirements, prior to facility renovation or demolition. Removal of ACM occurs when there is potential for a asbestos fiber release that would affect the environment or human health.

An asbestos survey was conducted at Brooks AFB in 1994 (Pacific Environmental Services, Inc., 1994). Sampling was conducted for 89 facilities suspected of containing ACM. Of the 89 facilities included in this survey, samples from 77 tested positive for ACM. An additional asbestos survey was conducted in 1996. Six buildings were surveyed; samples from two facilities (which were also included in the 1994 survey) tested positive for ACM. An asbestos survey was conducted for the military family housing area in 1993-1994. ACM was identified in floor tiles in approximately 35 percent of the units.

#### **3.4.2.4 Medical/Biohazardous Waste.**

Current federal regulations do not provide for regulation of medical waste but do allow states to individually regulate medical waste. The state of Texas regulates medical waste under 25 TAC 325, Subchapter Y, Medical Waste Management. Nuclear medical materials are regulated under the Air Force Radioisotope Committee and the Nuclear Regulatory Commission regulations.

Outpatient medical services for active and retired military personnel and their dependents are provided in the Composite Medical Clinic (Facility 615). In addition to the clinic, medical/biohazardous waste is generated at numerous facilities during medical research activities. All waste is stored in clearly marked refrigerated units for weekly collection and off-site disposal by a private contractor. In the past, an incinerator at Facility 1016 was used to burn pathological material under a TNRCC standard exemption (U.S. Air Force, 1998a). This incinerator has been replaced by a new pathological waste incinerator at Facility 1172, situated in the southeast portion of the base. The Air Force Research Laboratory (AFRL) is permitted to operate the pathological waste incinerator under TAC Section 106.494, Standard Exemption. AFRL is the support agent for animal-related research and training activities with Brooks AFB and serves as the agent for operation of the incinerator. Pathological waste and carcasses are burned in the incinerator.

#### **3.4.2.5 Lead-Based Paint.**

Human exposure to lead has been determined to be an adverse health risk by agencies such as OSHA and U.S. EPA. Sources of exposure to lead are through dust, soils, and paint. In 1973, the Consumer Product Safety Commission

(CPSC) established a maximum lead content in paint of 0.5 percent by weight in a dry film of newly applied paint. In 1978, under the Consumer Product Safety Act (P.L. 101-608), as implemented by 16 CFR Part 1303, the CPSC lowered the allowable lead level in paint to 0.06 percent. The Act also restricted the use of lead-based paints in nonindustrial facilities.

A lead-based paint survey was conducted at Brooks AFB in 1995. The survey was conducted in accordance with the U.S. Air Force's *Lead Exposure Management Guide* and the U.S. Housing and Urban Development's (HUD's) *Lead-Based Paint Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing*. Facilities surveyed include 33 MFH units, 3 playgrounds and associated equipment, and 7 other high-priority facilities. Results of the survey indicated that 100 percent of the surveyed MFH units contained lead-based paint. The majority of the lead-based paint was found on the exterior of the facilities (Galson Corporation, 1995).

The seven high-priority facilities surveyed were a temporary living facility (Facility 211), the chapel annex (Facility 414), the youth center (Facility 470), the child development center (Facility 502), the medical waiting areas (Facility 615), the Family Campground (Facility 1194), the Boys' Club (Facility 1198), and three playgrounds (Facilities 121, 271, and 4700). Facilities 414, 470, and 615, and a yellow wood structure at one of the playgrounds (Facility 121) tested positive for lead (Galson Corporation, 1995). An additional lead-based paint survey was performed in 1996. Five facilities were surveyed; one sample from Building 1188 tested positive for lead. Although not included in the definition of the high-priority buildings, the museum annex (Building 659) is in the process of having the lead-based paint encapsulated due to the high number of children who utilize the facility.

Approximately 115 other facilities at Brooks AFB were constructed prior to or during 1978 and, therefore, may contain lead-based paint (U.S. Air Force, 1998a). Lead-based paint is managed in place, as necessary and in accordance with Air Force policy, for facilities that are not high priority. Lead-based paint has been removed or encapsulated, as necessary, in high-priority facilities. Lead-based paint has been identified in military family housing units. Renovation projects to remove or encapsulate lead-based paint are ongoing.

### **3.5 NATURAL ENVIRONMENT**

This section describes the natural resources within the affected environment of Brooks AFB: geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

#### **3.5.1 Geology and Soils**

Geology and soils comprise features of the physical environment that may be affected by the proposed activities. These include physiography, geology (units, structure, and mineral resources), the potential for natural hazards, and soils (units and properties).

In general, the ROI for geology is the regional setting and specific localized features on, or proximal to, the base property.

#### **3.5.1.1 Physiography.**

Brooks AFB is situated near the base of the Edwards Plateau, adjacent to the Balcones Escarpment and Blackland Prairie, in an area classified as the Rio Grande (or Gulf Coast) Plain. The plain consists of level prairie and undulating hills dissected by the San Antonio River and its tributaries. Elevations on the plain range from 450 to 700 feet above mean sea level (MSL), with a general slope to the southeast (U.S. Department of Agriculture, 1991).

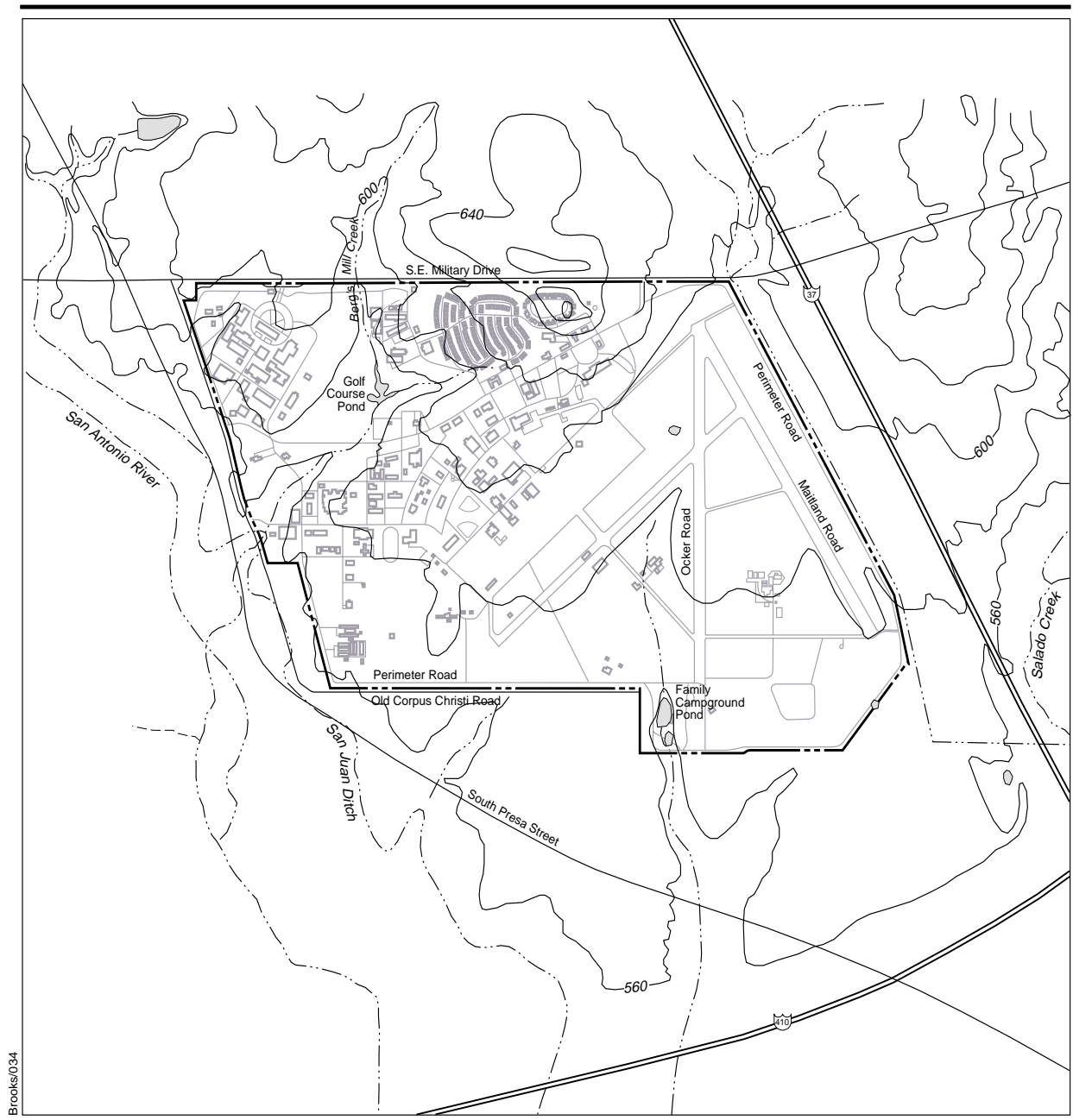
Regional topography is primarily influenced by the Balcones Escarpment, a broad area of faulted limestone that forms the southeast edge of the Edwards Plateau. The escarpment rises 1,000 feet above the prairie to the south and east, and reaches from Del Rio, Texas (160 miles to the west), through northern Bexar County, to Austin (70 miles to the northeast). The escarpment follows a northeast/southwest alignment through northern Bexar County (U.S. Air Force, 1997b). Brooks AFB is approximately 15 miles south of the Balcones Escarpment.

Topography within the installation boundaries is relatively flat, gently sloping to the southwest, south, and southeast away from a knoll on the north-central boundary of the base (Figure 3.5-1). Elevations on Brooks AFB range from 670 feet above MSL at the knoll to approximately 560 feet above MSL at the west and south edges of the base property. The north and northwest portions of the installation are characterized by rolling topography associated with the knoll and related drainage.

Surface drainage from Brooks AFB flows into the San Antonio River, which originates within the City of San Antonio. Discharge rates in this river during the summer months range from 10 cubic feet per second (cfs) to 20 cfs. Input from municipal and industrial treatment plants and urban runoff are the principal components (U.S. Air Force, 1997b). The regional drainage pattern in Bexar County flows almost entirely to the south and southeast from the Balcones Escarpment. However, localized drainage patterns on Brooks AFB flow to the south and southwest.

#### **3.5.1.2 Geology.**

Bexar County is positioned over the Balcones and Luling fault zones. These fault zones are characterized by mostly east-northeast-striking, near-parallel, normal faults, although northwest-striking cross faults are present. The faulting has modified the local structure of the bedrock units and caused development of secondary porosity in some strata (U.S. Air Force, 1997d). The downthrown side of the faults, as well as the dip of the sedimentary rocks, is predominantly to the southeast.

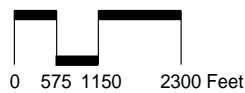


Brooks/034

## EXPLANATION

- Brooks Air Force Base Boundary
- - - Drainage
- 640 — Contour line and elevation in feet above mean sea level

## Topography



Source: U.S. Geological Survey, 1992.

**Figure 3.5-1**

A thick sequence of sedimentary rocks and unconsolidated material ranging in age from early Cretaceous to Quaternary underlies the San Antonio area (Barnes, 1974). The total thickness of this sequence ranges from approximately 4,500 to 5,500 feet. The surficial geologic units overlie the following, deeper units, in downward progression: the Marlbrook Marl, Pecan Gap Chalk, Buda Limestone, and Del Rio Clay. These units comprise the upper confining aquitard for the Edwards aquifer. The Edwards aquifer consists of three limestone formations and is the principal water supply source for the San Antonio area.

Tertiary-aged Midway and Wilcox groups and Quaternary fluvial terrace deposits are the primary rock units at Brooks AFB. The fluvial terrace deposits cover the eastern one-third of the base and cap the topographic high (knoll) along the northern perimeter. Eocene mudstones, sands, and clays of the Wilcox and Midway groups underlie the remaining two-thirds of the base. The Wilcox and Midway boundary is defined by a normal fault striking east-northeast across the southern one-third of the installation.

Oil is produced from both deep and shallow pay zones in southern Bexar County. Production is from reservoirs situated stratigraphically above and below the Edwards limestone group. Shallow oil wells south of Brooks AFB have produced from reservoirs at 300 to 1,000 feet (bgs) surface, presumably from the Upper Cretaceous limestone.

The fluvial terrace deposits bear commercial quantities of gravel and sand suitable for use as construction materials, as evidenced by mining operations north and south of the base boundary.

Although fossil associations are used to date many of the Cretaceous and Tertiary geologic units, the nature of fluvial deposits, mudstones, and marls generally precludes occurrence of diagnostic specimens. Because surface soils on Brooks AFB have developed from these types of deposits, no useful fossil finds are expected to be found on the installation.

#### **3.5.1.3 Natural Hazards.**

An east/west-trending fault, identified through drilling cores and a minor amount of seismic activity, reportedly extends across the northern one-third of the base, and may be related to the east-northeast-trending fault mapped by Barnes (1974) extending across the southern one-third of the installation. An associated displacement fault may also have been the cause of foundation damage to Facilities 615 and 617 (built during the 1970s), which would indicate recent faulting activity at the base (U.S. Air Force, 1989). However, Brooks AFB is in Seismic Zone 0, which indicates that the region has no, or very low, potential of sustaining major damage from a large earthquake (U.S. Air Force, 1992). Consequently, seismic safety is not a major design requirement for structures in the area.

No definitive value for total thickness of the Quaternary and Tertiary geologic units overlying the aquifer at the base is available due to the absence of well data. However, typical values for this thickness in the region have been reported to be

from 500 feet to 1,000 feet. With this amount of material overlying the limestones of the Edwards aquifer, there is little potential for ground collapse from sinkholes even if solution cavities have developed in the limestone.

Surface slopes on the base are 0-3 percent, except for the slopes surrounding the north boundary knoll, which are classified as 3-5 percent. Landslides, liquefaction, or related hazards are therefore unlikely, although erosion due to surface drainage and rapid water runoff could present a hazard in susceptible soils.

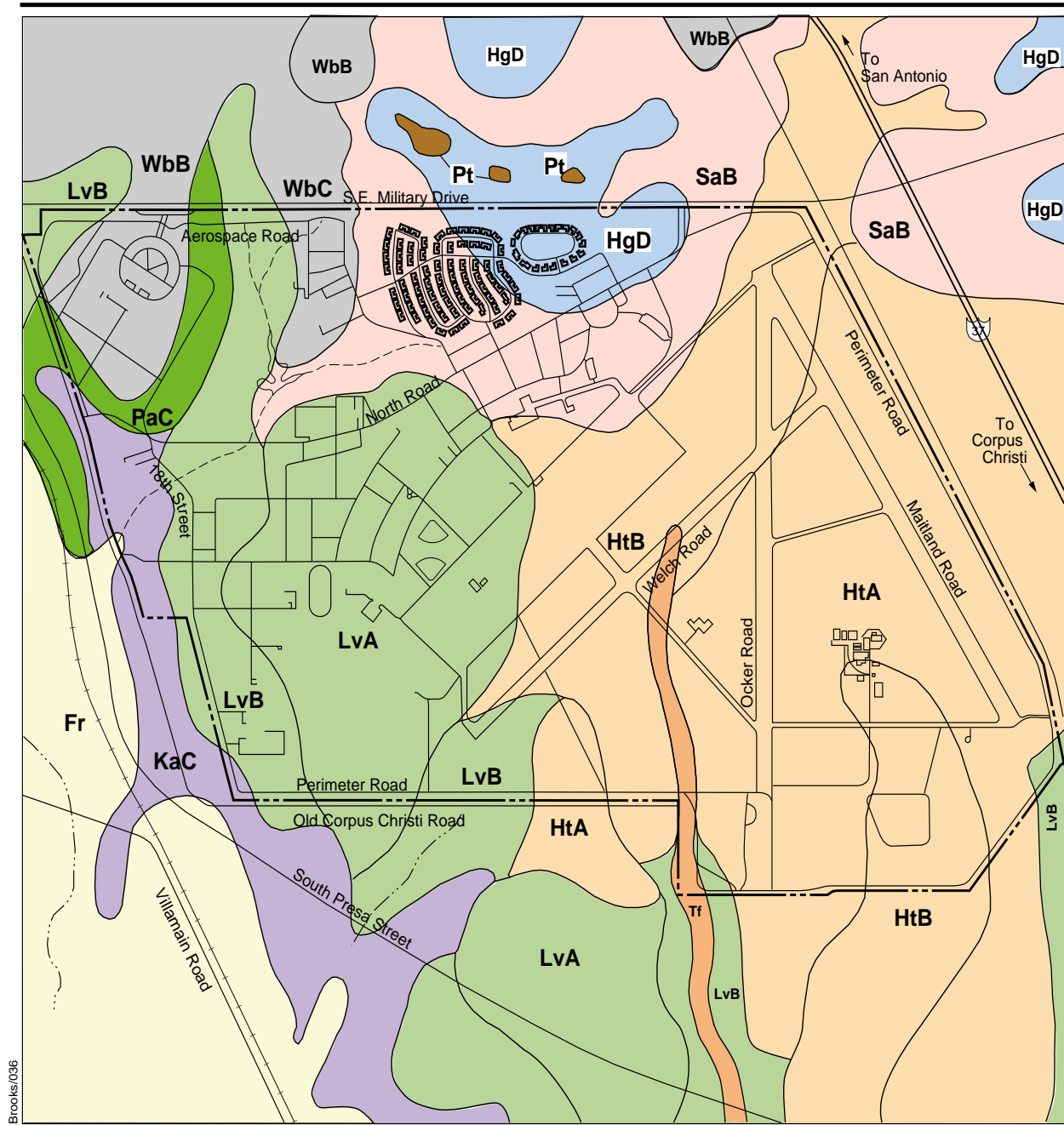
#### **3.5.1.4 Soils.**

The surface soils on base are typically moderately drained alluvial clay, silty clay, and silty clay loams. Permeability ranges from 0.3 to 2.5 inches per hour, with some higher values (up to 5 inches per hour) in the soils on the west side of the base. Gravel and gravelly alluvium can be encountered at depths of 5 to 12 feet (U.S. Air Force, 1997d).

Soils classified as Prime Farmland qualify for protection under the Farmland Protection Policy Act. The Natural Resources Conservation Service (NRCS) has evaluated the soils on Brooks AFB and categorized them into nine soil types. Six of these soil types have characteristics that make them suitable for classification as Prime Farmland when the soils are undisturbed. Five of the six Prime Farmland soils are classified as such in all areas where they occur; the sixth is considered Prime Farmland in irrigated areas only. Although Prime Farmland soils underlie the majority of the base, most of the property has been developed or disturbed by facility construction and none of these areas is irrigated for agricultural purposes. Based on these conditions, no Prime Farmland exists on Brooks AFB (U.S. Air Force, 1999c).

The nine soil types that occur on or proximal to Brooks AFB include Frio, Hilly Gravelly Land, Houston Black, Karnes, Lewisville, Patrick, San Antonio, Trinity, and Webb. Approximately 80 percent of the soil types found on the base belong to the Lewisville or Houston Black terrace series. The remaining soil types belong to the San Antonio and Webb series associated with uplands or undulating slopes; the Frio and Trinity soils along bottom lands and low terraces fringing streams and drainages; or to the Karnes, Patrick, or Hilly Gravelly Land series occurring on slopes or topographic highs (U.S. Department of Agriculture, 1991). The occurrences and extent of these soils are shown in Figure 3.5-2. Soil properties and suitabilities for various uses are summarized in Table 3.5-1.

The Lewisville and Houston Black terrace series soils occupy the eastern and southwestern portions of Brooks AFB. These soils have poor surface drainage characteristics and permeability is slow to moderate. Typically, rainfall is very rapidly absorbed when the soil is dry, but when the soil water content reaches field capacity, practically all rainfall runs off. Water erosion can be substantial with these soils.



#### EXPLANATION

- Brooks Air Force Base Boundary
- Hilly Gravelly Land (HgD)
- Houston Black (HtA, HtB)
- Lewisville (LvA, LvB)
- Patrick (PaC)
- San Antonio (SaB)

- Frio (Fr)
- Trinity (Tf)
- Webb (WbB, WbC)
- Karnes (KaC)
- Pits (Pt)

#### Soil Types

0 400 800 1600 Feet



Source: U.S. Department of Agriculture, 1991.

Figure 3.5-2



**Table 3.5-1. Soil Properties and Use Suitabilities - Brooks AFB**

**Page 1 of 2**

Soil Type	Map Symbol	Slope (percent)	Thickness (est. inch)	Texture	Underlying Material	Permeability (in/hr)	Swell/Shrink Potential	Susceptibility to Erosion	Drainage Characteristics	Corrosion Potential	Foundations
Hilly Gravelly Land	HgD	5-20	1 to 40 feet	Mostly gravel and caliche outcrops				Variable	Variable	Variable	Variable
Houston Black	HtA HtB	0-1 0-3	72 to 120	40-60" of calcareous clay over 18-24" of clayey alluvium, which grades to gravelly alluvium at depths of 60-120".	Loose gravel mixed with sand; gravel may be strongly cemented or capped with caliche.	0.3 to 0.5	Very Critical	None	Poor	Very High	Extremely Poor
Karnes	KaC	3-5	20 to 44	20-44" of calcareous loam to clayey loam over stratified alluvium.	Loamy alluvium, underlain in places by gravel below 48".	2.5+	Noncritical	Slight to Moderate	Excellent	High	Good
Lewisville	LvA LvB	0-1 0-3	36 to 65	27-60" of calcareous, moderately crumbly silty clay or clay loam; grades to loamy alluvium.	Friable, massive, loamy alluvium; gravel at 5 feet or more bgs.	1.0 to 2.0	Very Critical to Critical	None	Good	High	Extremely Poor
Patrick	PaC	3-5	10 to 60+	Several feet of loamy chert and limestone-derived gravel in upper 3-4".	Loose gravel beds.	1.0 to 5.0+	Noncritical Moderate	Moderate	Good	High	Good
San Antonio	SaB	0-3	30 to 120	6-15" noncalcareous clay loam to sandy loam overlying 17-30"	Rounded floatrock (boulders in soil matrix.	0.8 to 1.0	Critical	Moderate	Poor	High	Poor

**Table 3.5-1. Soil Properties and Use Suitabilities - Brooks AFB**

**Page 2 of 2**

Soil Type	Map Symbol	Slope (percent)	Thickness (est. inch)	Texture	Underlying Material	Permeability (in/hr)	Swell/Shrink Potential	Susceptibility to Erosion	Drainage Characteristics	Corrosion Potential	Foundations
San Antonio (Con't)				Noncalcareous clay to heavy clay loam; >26 to 45" bgs, large sandstone boulders have been found.							
Trinity	Tf	0	40 to 70	40-70" of slowly permeable calcareous clay over clayey alluvium; frequently flooded.	Clayey and gravelly alluvium.	0.2 to 0.4	Very Critical	None	Poor	Very High	Poor
Frio	Fr	0	36-72	25-45" of calcareous clay loam over 11-47+" of loam or stratified clay loam or sandy loam.	Massive or loose loamy sediments interbedded with gravel.	1.0 to 2.5+	Marginal	Moderate	Good	High	Poor
Webb	WbB WbC	0-3 3-5	60 to 56	5-18" of noncalcareous sandy loam over 18-38" or noncalcareous sandy clay or heavy sandy clay loam; fragments of altered sandstone common below 30".	Sandy clay to sandy clay loam with weakly consolidated sandstone.	0.6 to 1.5	Noncritical to Critical	Slight to Severe	Slow	High	Poor

The San Antonio series soils are found surrounding the knoll that dominates the topography at the installation. The soils are characterized by slow surface drainage; permeability is very slow. Water erosion poses a serious hazard with these soils.

Webb soils are naturally well drained; water erosion is a hazard for these soils. The soils are found only in the northwest corner of the base.

Frio and Trinity soils border the natural drainage in the south-central portion of the base (Trinity) and are found to the west along the San Antonio River channel (Frio). Both of these soils have slow surface drainage, permeability is slow, and water-holding capacity is good. Flooding is an associated hazard for these soils.

Karnes loam series soils are well drained; internal drainage, permeability, and water-holding capacity are all moderate. These soils occur along the west boundary of Brooks AFB. Runoff from higher lying soils causes formation of deep gullies in unprotected cultivated areas of the Karnes loam series soils. The hazard of water erosion is, therefore, serious.

Patrick series clay loams generally overlie loose gravel beds; slopes are moderate and convex. There is a small segment of these soils in the northwest corner of the installation.

Hilly Gravelly Land occurs as knolls or narrow ridges that are likely erosion-resistant remnants of old waterways. The knolls may rise as much as 40 feet above surrounding soils. At Brooks AFB, the knoll on the north base boundary is capped with this soil type.

### **3.5.2 Water Resources**

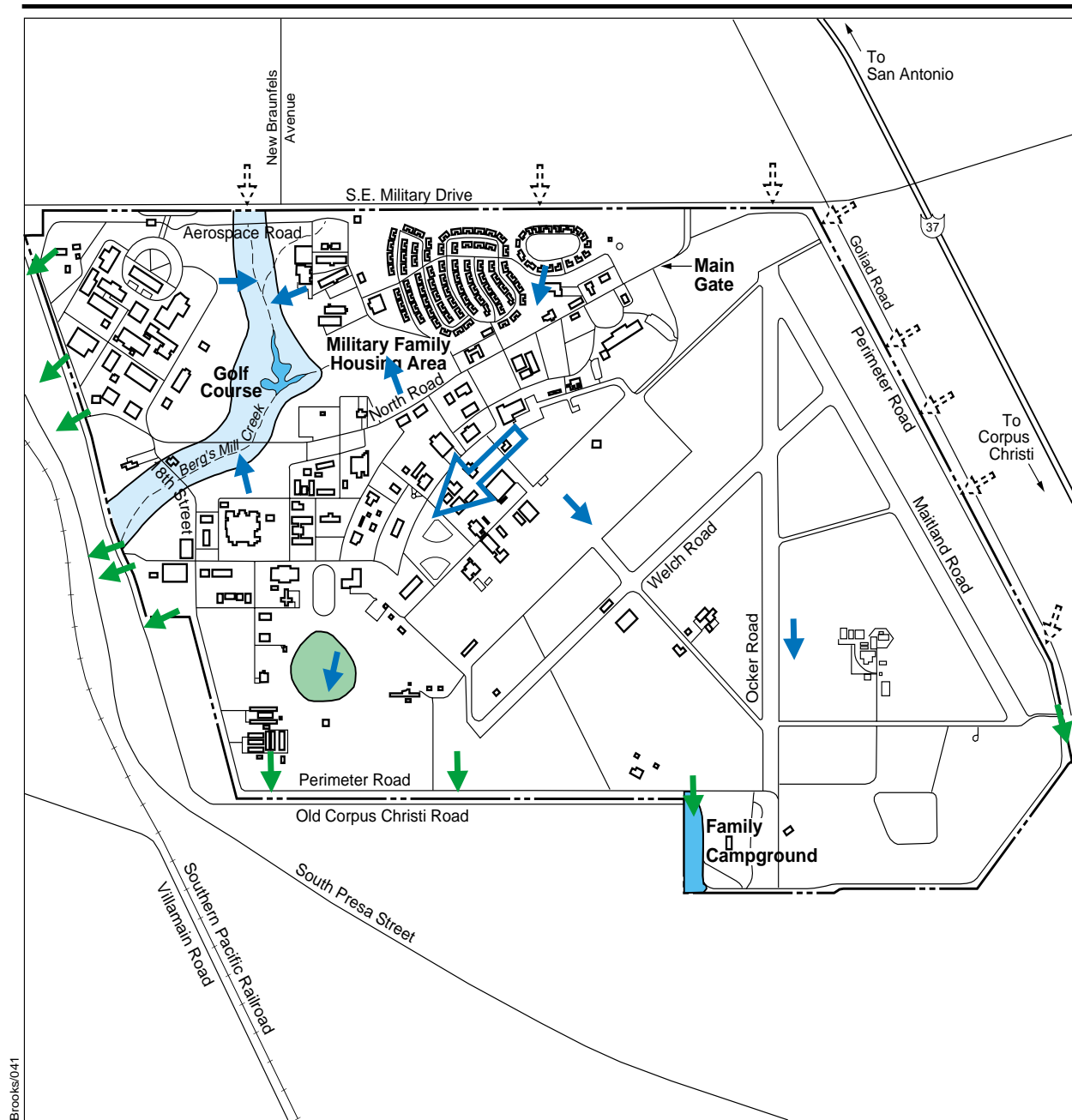
Potential impacts to water resources can include either surface water or groundwater volumes or flow rates and, more importantly, to their water quality. The following sections describe the existing environment as it relates to surface water runoff, the occurrence of groundwater, and the water quality of each.

The ROI for water resources encompasses the base property and, because of concerns to off-base resources, adjacent areas to the west and south of the base.

#### **3.5.2.1 Surface Water.**

Storm water exits the base at various points along the installation perimeter (Figure 3.5-3). Seven of these are in natural (topographic) drainages.

The surface water runoff at Brooks AFB flows to both natural swales and engineered ditches that empty into local streams and eventually discharge to the San Antonio River. Natural drainage outside of the base to the north and east has been diverted to a ditch that parallels the east boundary of the installation. The east part of the base also drains to this ditch and then into Salado Creek



#### LEGEND

- |  |  |  |                         |
|--|--|--|-------------------------|
|  | Brooks Air Force Base Boundary                 |  | Surface Water Drainage  |
|  | Interstate Highway                             |  | Storm Drainage Outfalls |
|  | Jurisdictional Wetland                         |  | Groundwater Flow        |
|  | 100-year Floodplain                            |  | Storm Water Infalls     |
|  | Jurisdictional Wetland and 100-year Floodplain |  |                         |

0 400 800 1600 Feet



Source: U.S. Air Force, 1998a.

#### Natural Resources Features

Figure 3.5-3

(see Figure 3.5-1). Salado Creek discharges into the San Antonio River approximately 4 miles south of the base.

Remains of a former irrigation canal, or acequia system (a system of irrigation ditches), are present along the west base boundary. The acequia system, which is discussed in more detail in Section 3.5.6.2, includes the water course identified as the San Juan Acequia. The west portion of Brooks AFB drains to Berg's Mill Creek. A concern has been expressed regarding storm water drainage during heavy storm events near the San Juan Acequia. Damage to a portion of the acequia has occurred during such events. However, storm water flow exiting Brooks AFB to the west flows beneath the acequia.

There are currently two 6-foot-deep surface water impoundments on Brooks AFB (see Figure 3.5-3). The 1.4-acre Golf Course Pond was installed in the late 1950s to early 1960s as a flood control structure. The pond is situated near the center of the nine-hole golf course in the northwest quadrant of the base. The 1.1-acre Family Campground Pond, which is situated on the south-central perimeter of the base, was constructed in 1986-1987, and functions as both a flood control pond and an alternative recreational fishing pond (U.S. Air Force, 1997a).

Areas that would be inundated by 100-year floods are subject to protection under EO 11988 (Floodplain Management), and AFI 32-7064 (Chapter 4, Floodplain Management and Wetlands Protection). Two areas on base are within the 100-year floodplain (see Figure 3.5-3). Both sites are in undeveloped areas and are used for recreational purposes. One area is adjacent to Berg's Mill Creek, a tributary of the San Antonio River that flows south-southwest on the base through the golf course, forms the golf course pond, and exits south of the West Gate. The other area classified as a 100-year floodplain is on the southeast portion of the base at the Family Campground Pond (U.S. Air Force, 1998a).

### **3.5.2.2 Groundwater.**

Any description of groundwater in the San Antonio region, or the larger, multiple county area along the Balcones Escarpment (see Sections 3.5.1 and 3.5.2), should begin with a discussion of the Edwards aquifer. Much of the potable water used in the greater San Antonio region is drawn from wells or springs that tap the Edwards limestones and associated formations in the Balcones fault zone. The Edwards aquifer is a series of relatively flat limestone or dolostone formations that thicken and dip to the south and southeast. The Edwards aquifer formations are underlain by the Glen Rose Formation (lower confining unit), and overlain by the Del Rio Formation (upper confining unit). Complicating this structure are many faults and fault zones that have deformed or displaced the water-bearing formations against non-water-bearing formations. The most important of these fault zones caused the uplift responsible for the Balcones Escarpment (Groschen, 1996), a description of which is given in Section 3.5.1.1.

There are three important hydrologic zones associated with the Edwards aquifer: the watershed catchment zone, the groundwater recharge zone, and the confined aquifer zone. The watershed catchment zone is situated primarily on the

Edwards Plateau and provides the drainage areas where rainfall is collected and funneled toward the recharge zone. The recharge zone is a relatively narrow exposure of Edwards aquifer formations at the ground surface downgradient from the Balcones Escarpment. After the Edwards aquifer formations dip below the Del Rio Formation toward the southeast, they form the confined aquifer zone that is so productive for this region. The recharge zone is northwest of San Antonio and extends for approximately 175 miles from Kinney County eastward to Hayes County, Texas. A portion of the recharge zone is within the northwestern San Antonio city limits. The aquifer is recharged partly by infiltration of rainwater, partly by seepage from surface rivers, but mainly through underflow of streams on the Edwards Plateau. Such recharge is characterized by the downward movement of surface water via surface openings, cavities, and sinkholes in the recharge zone. Within the confined aquifer zone, there is a downgradient limit to the potable (usable) groundwater resource, beyond which the groundwater is saline and not usable (Stein and Ozuna, 1996; Barker, Bush and Baker, 1994).

The continued dip of the Edwards aquifer formations to the east and southeast and the confining layers above and below create the artesian conditions within the confined aquifer zone. This dip also places the top of the aquifer at ever increasing depths below the ground surface downgradient from the recharge zone. According to Groschen (1996), the depth to the bottom of the Del Rio formation (upper confining unit) beneath the Brooks AFB property is approximately 640 feet below sea level. Since the ground surface elevation of Brooks AFB ranges from 560 feet to 670 feet above sea level, the depth to the top of the Edwards aquifer ranges between 1,200 feet to 1,310 feet bgs. The location of Brooks AFB also puts it above the saline groundwater within the Edwards aquifer; in other words, it is southeast of the limit of fresh groundwater resources. Any surface water on the Brooks AFB property that manages to infiltrate into the ground will not reach the Edwards aquifer, but would contribute to a shallower aquifer that is reported as discontinuous and perched above the Edwards aquifer.

The water supply for Brooks AFB is purchased from SAWS, which obtains its water from the Edwards aquifer. SAWS obtains approximately 178,000 acre-feet of water per year from the Edwards Aquifer Authority. However, it is anticipated that SAWS' next permit to obtain groundwater from the Edwards aquifer will only allow between 148,000 and 170,000 acre-feet per year (San Antonio Water System, 1998). These limitations are a result of the current overdraft of water from the Edwards aquifer, which contains an estimated 173 million acre-feet of freshwater. However, the difference between the average annual recharge for this aquifer (approximately 683,000 acre-feet) and the sum of the annual natural outflow to springs and seeps (estimated to be about 363,500) and the regional pumping from the aquifer (last estimated at approximately 542,400 acre-feet) was negative (Stein and Ozuna, 1996). To underscore the severity of the water supply concerns in this area, water demand in the Edwards aquifer region is expected exceed 850,000 acre-feet annually by 2020; it is expected to be over 1 million acre-feet per year by 2050 (San Antonio Water System, 1998).

Because of the current overdraft of this aquifer and the rising future demand for water, the Edwards Aquifer Authority has been directed by the Texas State

Legislature to regulate and control withdrawal from the aquifer. Thus, under state law, the Edwards Aquifer Authority is required to immediately limit annual withdrawals to 450,000 acre-feet per year and to further reduce withdrawals to 400,000 acre-feet by 2008. However, the administrative rules that implement the state law have been invalidated as a result of a successful court challenge and must be re-promulgated under the Texas Administrative Procedures Act.

Also in response to this crisis, SAWS is investigating alternative sources of water. These options may be non-Edwards aquifer groundwater sources, surface water supplies, wastewater recycling, or enhancing the amount of recharge to the Edwards aquifer.

### **3.5.2.3 Water Quality.**

No point source discharges from Brooks AFB require an NPDES permit. However, the more recent implementation of storm water National Pollutant Discharge Elimination System (NPDES) permits has included Brooks AFB as an industrial activity, and it is currently covered under the federal multi-sector general permit (MSGP) requiring monitoring and control of storm water runoff. Regulatory responsibility for the administration of this permit will transfer to the TNRCC in late September 2000, and the permit will fall under the Texas Pollutant Discharge Elimination System (TPDES). It will remain a general permit and include Brooks AFB as one of many permittees.

Assessment of the groundwater quality in the Brooks AFB area must address both the Edwards aquifer and the shallower groundwater overlying the upper confining unit of the Edwards aquifer. Because of its high yield potential (highly porous materials), the Edwards aquifer is easily susceptible to contamination in the recharge zone, but not in the areas underlain by the upper confining units of the aquifer system. Brooks AFB is situated approximately 15 to 20 miles southeast of the recharge zone. The depth to the aquifer beneath the base is estimated a minimum of 1,200 feet bgs.

A TCE groundwater plume associated with IRP Site FT002 is situated in the southwest corner of the installation (see Section 3.4.2, Hazardous Waste Management). The groundwater associated with this plume is within a shallow aquifer unconnected to the Edwards aquifer. This shallow aquifer is not currently used as a source of potable water.

A linear interface between freshwater and saline water exists roughly parallel to the Balcones recharge zone that extends along the entire width of the Edwards aquifer. The boundary projection of this interface forms a line that would run through Randolph AFB and extend through central San Antonio. Northwest of this boundary, water is suitable for consumption; southeast of the boundary, the water contains hydrogen sulfide and generally has more than 1,000 ppm dissolved solids. The groundwater beneath Brooks AFB would be included in this saline section of the aquifer and is not considered suitable for consumption.

There are no drinking water quality concerns at Brooks AFB. All potable water is purchased from the SAWS; there are no active on-base wells.

### 3.5.3 Air Quality

The federal CAA, 42 U.S.C. 7401-7671(q), amended in November 1990, provides that emissions sources must comply with the air quality standards and regulations that have been established by federal, state, and county regulatory agencies. These standards and regulations focus on (1) the maximum allowable ambient pollutant concentrations, and (2) the maximum allowable emissions from individual sources.

U.S. EPA established the federal standards for the permissible levels of certain pollutants in the atmosphere. The National Ambient Air Quality Standards (NAAQS) have been established for six criteria pollutants: ozone (VOCs and nitrogen oxides [ $\text{NO}_x$ ]), nitrogen dioxide ( $\text{NO}_2$ ), particulate matter equal to or less than 10 microns in diameter ( $\text{PM}_{10}$ ), carbon monoxide (CO), sulfur dioxide ( $\text{SO}_2$ ), and lead. The state of Texas has adopted the NAAQS as their representative air quality standards. The NAAQS are listed in Table 3.5-2.

Section 176c of the CAA provides that a federal agency cannot support an activity in any way unless the federal agency determines that the activity will conform to the State Implementation Plan's (SIP's) purpose of attaining and maintaining the NAAQS. In accordance with this part of the Act, U.S. EPA announced promulgation of its final conformity rule for general federal actions for nonattainment and maintenance areas in the November 30, 1993, Federal Register (40 CFR Part 51).

The final rule does currently not apply to the transfer of Brooks AFB property because of the attainment status of the region. However, there is a possibility that the San Antonio area may be redesignated as a nonattainment area for ozone as early as January 2001, due to the area's inability to achieve the new 8-hour standard for ozone. This new 8-hour standard is currently being challenged and will go before the Supreme Court. Since the San Antonio area is currently an attainment area, the project is not subject to general conformity.

In addition, an NAAQS for lead of 1.5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), averaged over a calendar quarter, has been established. The 1990 CAA Amendments (CAAA) recognized lead and lead compounds for their toxic characteristics, and they have been included on the list of hazardous air pollutants (HAPS) in Section 112(d).

Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the CAA, which established the NESHAP. The NESHAP regulations (40 CFR Part 61 Subpart M) address the renovation or demolition of buildings with ACM. Under the NESHAP, the owner of a structure must, prior to renovation or demolition of buildings with ACM, provide notice to the regulator with CAA authority (either the U.S. EPA or its state counterpart).

Lead air emissions are also regulated by OSHA, which focuses on lead exposure to workers. OSHA's lead in construction standard applies to all construction work where an employee may be occupationally exposed to lead, including demolition or salvage of structures where lead or materials containing lead are present. The permissible exposure limit (PEL) established by OSHA sets the maximum worker



**Table 3.5-2. National and Texas Ambient Air Quality Standards**

Table 6.12. National and Texas Ambient Air Quality Standards				
Pollutant		Standard Value <sup>(b)(c)</sup>		Standard Type <sup>(d)(e)</sup>
Carbon Monoxide (CO)				
8-hour Average		9 ppm	10 mg/m <sup>3</sup>	Primary
1-hour Average		35 ppm	40 mg/m <sup>3</sup>	Primary
Nitrogen Dioxide (NO <sub>2</sub> )				
Annual Arithmetic Mean		0.053 ppm	100 µg/m <sup>3</sup>	Primary & Secondary
Ozone (O <sub>3</sub> )				
1-hour Average		0.12 ppm	235 µg/m <sup>3</sup>	Primary & Secondary
8-hour Average <sup>(a)</sup>		0.08 ppm	157 µg/m <sup>3</sup>	Primary & Secondary
Lead (Pb)				
Quarterly Average			1.5 µg/m <sup>3</sup>	Primary & Secondary
Particulate < 10 micrometers (PM <sub>10</sub> )				
Annual Arithmetic Mean			50 µg/m <sup>3</sup>	Primary & Secondary
24-hour Average			150 µg/m <sup>3</sup>	Primary & Secondary
Particulate < 2.5 micrometers (PM <sub>2.5</sub> )				
Annual Arithmetic Mean <sup>(a)</sup>			15 µg/m <sup>3</sup>	Primary & Secondary
24-hour Average <sup>(a)</sup>			65 µg/m <sup>3</sup>	Primary & Secondary
Sulfur Dioxide (SO <sub>2</sub> )				
Annual Arithmetic Mean		0.03 ppm	80 µg/m <sup>3</sup>	Primary
24-hour Average		0.14 ppm	365 µg/m <sup>3</sup>	Primary
3-hour Average		0.50 ppm	1300 µg/m <sup>3</sup>	Secondary

Notes: (a) The ozone 8-hour standard and the PM<sub>2.5</sub> standards are included for information only. A 1999 federal court ruling blocked implementation of these standards, which U.S. EPA proposed in 1997. U.S. EPA has asked the U.S. Supreme Court to reconsider that decision.

(b) Standards, other than for ozone and those based upon annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

(c) Concentrations are expressed first in units in which they were promulgated. Equivalent units are provided in the second column.

(d) Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the U.S. EPA.

(e) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the U.S. EPA approves the implementation plan.

µg/m<sup>3</sup> = micrograms per cubic meter

mg/m<sup>3</sup> = milligrams per cubic meter

ppm = parts per million

exposure to lead at airborne concentrations greater than 50 µg/m<sup>3</sup> averaged over 8 hours in any workday. The action level at which an employer must begin certain compliance activities, outlined in OSHA standards for lead in demolition activities, is an airborne concentration of 30 µg/m<sup>3</sup> calculated as an 8-hour time-weighted average (TWA).

The ROI for the air quality analysis is the existing airshed surrounding Brooks AFB within Bexar County. Baseline emission inventories for Bexar County and Brooks AFB are presented in Tables 3.5-3 and 3.5-4, respectively. Existing baseline emissions of lead are considered insignificant (fewer than 2 pounds per year at Brooks AFB for all sources combined) and are, therefore, not included in these tables.

**Table 3.5-3. Baseline Emission Inventory, Bexar County (tons per year)**

Emission Sources	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC
Stationary Sources	1,872.5	2,496.9	25,483.8	28,246.8	1,042.9
Mobile Sources <sup>(a)</sup>	(b)	228,537.5	35,478.0	(b)	27,864.1
Total	1,872.5	231,034.4	60,961.8	28,246.8	28,907.0

Notes: (a) Vehicles operating on public roadways only, not including airport support vehicles or off-road vehicles.

(b) Negligible.

CO = carbon monoxide

NO<sub>x</sub> = nitrogen oxides

PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter

SO<sub>2</sub> = sulfur dioxide

VOC = volatile organic compound

Source: Texas Natural Resource Conservation Commission, 1998.

**Table 3.5-4. Baseline Emission Inventory, Brooks AFB (tons per year)**

Emission Sources	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC	Total HAPs
Aboveground Tanks	(b)	(b)	(b)	(b)	1.41	0.07
Degreaser/Solvent Cleaning	(b)	(b)	(b)	(b)	0.17	(b)
External Combustion	1.02	2.72	7.95	0.08	0.43	0.04
Fuel Dispensing	(b)	(b)	(b)	(b)	4.55	0.10
General Processes	(b)	(b)	(b)	(b)	0.06	0.06
Incinerator	(b)	(b)	(b)	(b)	(b)	0.05
Internal Combustion	0.07	0.21	0.96	0.06	0.08	(b)
Surface Coating	(b)	(b)	(b)	(b)	1.90	(b)
Underground Tanks	(b)	(b)	(b)	(b)	0.41	(b)
Woodworking	0.29	(b)	(b)	(b)	(b)	(b)
Mobile Sources <sup>(a)</sup>	0.10	44.23	4.58	(b)	3.89	(b)
Total	1.48	47.16	13.49	0.14	12.90	0.32

Notes: (a) Emissions are based on four different classes of motor vehicles utilized on base: privately owned, resident population, transient student, and government-owned or leased vehicles.

(b) Negligible.

CO = carbon monoxide

HAP = hazardous air pollutant

NO<sub>x</sub> = nitrogen oxides

PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter

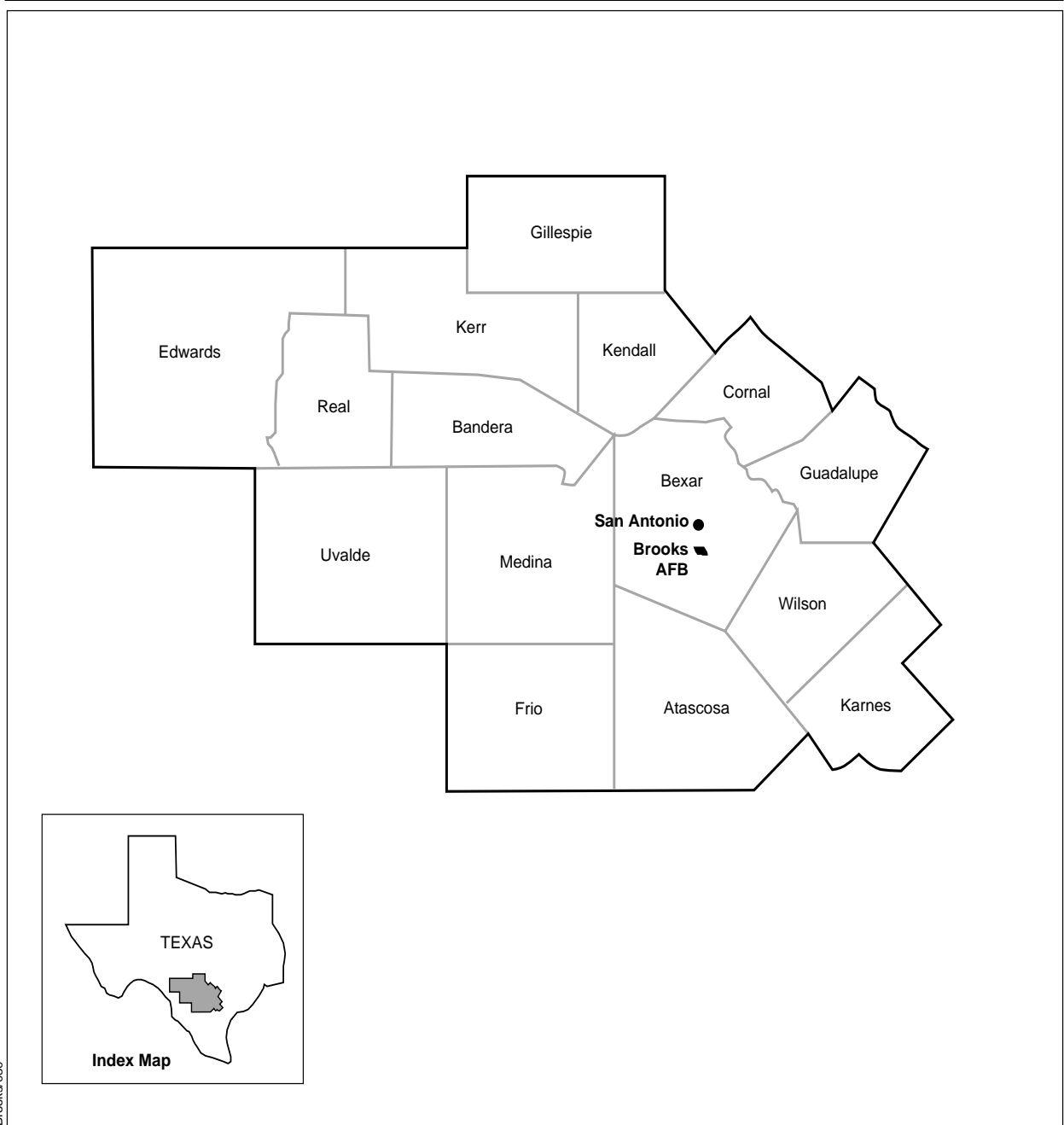
SO<sub>2</sub> = sulfur dioxide

VOC = volatile organic compound

Source: U.S. Air Force, 1996c.

Bexar County is in Texas Air Pollution Control District (APCD) 217, Region XIII, 1 of the 16 air quality districts in Texas (Figure 3.5-4). Bexar County is in attainment for all criteria pollutants. The regulatory authority is the TNRCC, Air Quality Division. Bexar County reported monitoring data as part of the 1996 Annual Air Quality Report for Texas. Monitor sensors for total suspended

Brooks/030



#### EXPLANATION

- Region XIII Boundary
- County Line

#### TNRCC Region XIII Air Basin



NOT TO SCALE

Figure 3.5-4

particulates (TSP) and SO<sub>2</sub> were included in the report. The monitoring data did not identify any exceedances of the NAAQS for Bexar County.

CO is considered a localized problem. Analysis for CO hotspots is required when an activity is likely to impact within 1/4 mile of a sensitive source receptor. Sensitive receptors include residences, schools, playgrounds, childcare facilities, athletic fields, and structures such as rehabilitation facilities. CO is a directly emitted pollutant, which usually concentrates near heavily congested streets. CO emissions are primarily associated with automobile usage. Currently, air quality in the ROI is not affected by increased levels of CO or CO hotspots.

The largest baseline criteria pollutant emission on the base is CO, at approximately 50 tons per year, resulting from stationary and mobile sources. The majority of these emissions result from mobile sources on the base. Brooks AFB currently has no air emission permits. However, standard exemptions are in place for the pathological incinerator, soil venting system, and groundwater/soil remediation system.

Because Bexar County is an attainment area, it is regulated under the Prevention of Significant Deterioration (PSD) program authorized by the CAA, Part C, Sections 160-169. Within PSD areas, owners and/or operators of new or modified sources must obtain a PSD permit prior to construction of a major source in attainment or unclassified areas. A major source is defined by PSD regulations as being a specific type of source listed by U.S. EPA that has a potential of emitting 100 tons per year of a regulated pollutant, or 250 tons if the source is not a major source (secondary emissions are not included).

Brooks AFB is not considered a major source under TNRCC Title 30, Part 1, Chapter 122, and does not require a Title V operating permit. Air emissions are limited to those generated by the use of stationary equipment, mobile sources, and area sources.

These sources result in minor emissions, and current air emissions from the site are negligible to ambient air quality.

Some national parks and wilderness areas are designated as Class I areas, and appreciable deterioration or air quality is considered significant. No PSD Class I areas have been identified within 50 miles of Brooks AFB.

In an attempt to limit emissions of NO<sub>x</sub> and VOCs, which contribute to an increase in ozone levels, the TNRCC has developed a program for the City of San Antonio called the Air Quality Health Alert Plan (AQHAP). This plan focuses on reducing emissions from both mobile sources (automobiles and heavy construction equipment) and area sources (paving and painting activities).

Guidelines and procedures for reducing emissions include both year-round and episodic activities. The use of public transportation and carpooling, as well as energy conservation practices, are encouraged year-round. On sunny days with high temperatures and low winds, an Air Quality Health Alert Day may be implemented. As part of the AQHAP, on such days, construction activities at Brooks AFB would follow appropriate vehicle operating tips such as avoiding

excessive idling and rescheduling any nonessential outdoor painting or paving activities to evenings or better air quality days.

#### **3.5.4 Noise**

Noise is defined as unwanted sound that interferes with normal human activities or otherwise diminishes the quality of the environment. The ROI includes noise associated with on-base construction and surface traffic noise on highways and local key roadways in the vicinity of Brooks AFB that were considered in the transportation analysis.

Sound intensity is measured with a logarithmic unit known as the decibel (dB). When measuring sound to determine its effects on a human population, A-weighted sound levels (dBA) are typically used to account for the frequency response of the human ear.

Because noise levels often change with time, several descriptors have been developed that take into account this time-varying nature. One A-weighted descriptor, the day-night average sound level ( $L_{dn}$ ), is the most commonly used metric for evaluation of community noise impacts. Minimum national noise standards applicable to the HUD programs are described in 24 CFR Part 51.101. HUD considers 65 dB  $L_{dn}$  acceptable, and above 65 dB  $L_{dn}$  normally unacceptable.

Surface traffic noise levels for roadways in the vicinity of Brooks AFB were analyzed using the Federal Highway Administration's Highway Noise Model (Federal Highway Administration, 1978). The model incorporates vehicle mix, traffic volume projections, and speed to generate  $L_{dn}$ . The noise levels are then presented as a function of distance from the centerline of the nearest road. Four noise-sensitive receptors are present along key roadways in the vicinity of Brooks AFB. These include three single-family housing areas along S.E. Military Drive, Goliad Road, and South Presa Street, as well as the Texas Center for Infectious Disease. Existing traffic on S.E. Military Drive, South Presa Street, and Goliad Road generates noise that affects these sensitive receptors. Noise modeling conducted for these receptors indicates that  $L_{dn}$  is between 62 and 67 dBA.

#### **3.5.5 Biological Resources**

Biological resources include the native and introduced plants and animals in the ROI. For discussion purposes, these resources have been divided into the following categories: vegetation, wildlife, threatened and endangered species, and sensitive habitats. The ROI for biological resources includes the on-site areas (where construction and development may occur) and adjacent property.

##### **3.5.5.1 Vegetation.**

Brooks AFB is in the north area of the ecological region known as the South Texas Plains, Rio Grande Plains, or Tamaulipian Brushlands. Most of the 1,310 acres on Brooks AFB have been altered or developed during construction of structures, streets, and the former airfield. Approximately 100 noncontiguous

acres of native vegetative cover remain. This acreage contains relatively mature stands of vegetation that are somewhat representative of species that were present before development and urbanization of the general area. However, most of the base is dominated by non-native grasses and invading riparian and thorny woody species that have replaced the natural vegetation. This replacement of natural vegetation is due, in part, to fire suppression activities. Some of the plant species that occur on the undeveloped portions of the base include Bermuda grass (*Cynodon dactylon*), Johnson grass (*Sorghum halepense*), little bluestem (*Andropogon scoparius*), silver bluestem (*Andropogon saccharoides*), Dallis grass (*Paspalum dilatatum*), low panicums (*Panicum* sp.), huisache (*Acacia smallii*), agarito (*Berberis trifoliolata*), honey mesquite (*Prosopis glandulosa*), and sugar hackberry (*Celtis laevigata*) (U.S. Air Force, 1996c).

### **3.5.5.2 Wildlife.**

Although the undeveloped portion of the base provides approximately 485 acres (including 11.5 acres of wetlands) of relatively undisturbed habitat for native wildlife species, the diversity and abundance of species is limited due to the noncontiguous/restricted nature of the native cover. Faunal studies conducted in December 1993 and July 1996 on Brooks AFB identified 6 reptile, 8 mammal, and 47 bird species on base. None of the species observed was federally or state-listed threatened or endangered species or “species of special concern” (U.S. Air Force, 1996c). Some of the “common” species that occur on Brooks AFB include the black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), snapping turtle (*Chelydra serpentina*), red-eared slider (*Chrysemys scripta*), American crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), house sparrow (*Passer domesticus*), and mourning dove (*Zenaida macroura*).

### **3.5.5.3 Threatened and Endangered Species.**

According to the Integrated Natural Resources Management Plan (INRMP) for Brooks AFB, no federally or state-listed threatened and endangered species are present on the base (U.S. Air Force, 1996c).

A biological survey of Brooks AFB was conducted in 1998; the final survey report was completed in March 1999 (U.S. Air Force, 1999a). The report confirmed that no threatened or endangered species are present on Brooks AFB.

Federally and state-listed endangered species known to occur within the general area of the Edwards aquifer and San Marcos and Comal aquatic systems include Texas wild-rice (*Zizania texana*), Peck’s Cave amphipod (*Stygobromus pecki*), Comal Springs riffle beetle (*Heterelmis comalensis*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), fountain darter (*Etheostoma fonticola*), San Marcos gambusia (*Gambusia georgei*), and Texas blind salamander (*Typhlomolge rathbuni*). Additionally, the federally and state-listed as threatened San Marcos salamander (*Eurycea nana*) is present within the general area. These species require adequate spring flow and are threatened by decreased water quality, water quantity, and water stagnation. The Texas wild-rice, fountain darter, San Marcos gambusia, and San Marcos salamander are found in habitats

associated with Spring Lake and its outflow, the San Marcos River. The Texas blind salamander, a species known only from Hayes County, Texas, inhabits the subterranean waters of the Edwards aquifer near the city of San Marcos. The three invertebrate species, Peck's Cave amphipod, Comal Springs riffle beetle, and Comal Springs dryopid beetle, are all present at Comal Springs and in other spring areas such as Hueco, San Marcos, and Fern Bank springs.

#### **3.5.5.4 Sensitive Habitats.**

Sensitive habitats include wetlands, plant communities that are designated as limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial winter/summer habitat). Sensitive habitats on Brooks AFB property consist of 11.7 acres of jurisdictional wetlands found at three locations on the base (see Figure 3.5-3). Jurisdictional wetlands have been delineated in the southeast portion of the base adjacent to the Family Campground area (2.2 acres), in the Golf Course area (2.2 acres), and in the southwest portion of the base in the Antenna Farm area (7.3 acres) (U.S. Army Corps of Engineers, 1997). Wetlands are protected under Section 404 of the CWA and by EO 11990 (Wetlands Protection).

#### **3.5.6 Cultural Resources**

Cultural resources are prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. For ease of discussion, cultural resources have been divided into three main categories: prehistoric and historic archaeological resources, historic buildings and structures, and traditional resources.

For this EIS, the cultural resources ROI is synonymous with the area of potential effect, as defined by regulations implementing the National Historic Preservation Act (NHPA) (16 U.S.C. 470f). The ROI encompasses the entirety of the installation, including all facilities, infrastructure, and open space; all areas of ground disturbance within the base boundaries; and all buildings and structures subject to modification.

Numerous laws and regulations require federal agencies to consider the effects of a proposed project on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationships among other involved agencies (e.g., State Historic Preservation Office [SHPO], Advisory Council on Historic Preservation). The primary law governing the treatment of cultural resources is the NHPA, which requires a federal agency to consider potential impacts on historic properties from any proposed undertaking. Methods used to achieve compliance with these requirements are presented in Appendix G.

For nonfederal properties in San Antonio, Section 35-7037 (*Unidentified Archeological Sites*) of San Antonio Ordinance 80910 prescribes specific actions to be followed when a previously unidentified archaeological site is discovered

during the course of construction or demolition. Specifics of this ordinance are provided in Appendix G.

Only those potential historic properties determined to be significant under cultural resources legislation are subject to protection or consideration by a federal agency. The quality of significance, in terms of integrity and applicability to National Register of Historic Preservation (National Register) criteria, is discussed in Appendix G. Significant cultural resources, either prehistoric or historic in age, are referred to as “historic properties.”

In compliance with Sections 106 and 110 of the NHPA, the Air Force has previously consulted with the SHPO at the Texas Historical Commission regarding cultural resources at Brooks AFB. Surveys for archaeological resources and historic buildings and structures have been performed (Geo-Marine, Inc., 1995; Earth Tech and Planning Consultants Research 1998) and a follow-on survey to evaluate facilities under the Man in Space historic context is in progress. Results of these surveys are discussed in the appropriate subsections.

### ***3.5.6.1 Prehistoric and Historic Archaeological Resources***

**Prehistoric Context.** Brooks AFB is situated in a South Texas archaeological region that has supported a cultural resources chronology for over 10,000 years. The base is near the edge of Balcones Escarpment, which is within the Central Texas archaeological region. As a result, the archaeology of both regions was considered when reviewing the cultural resources of Brooks AFB and the surrounding area (Geo-Marine, Inc., 1995). The archaeological chronology recognized in Central and South Texas includes the Paleo-Indian Period (ca. 10,000-6000 Before Christ [B.C.]), the Archaic Period (ca. 6000 B.C.-Anno Domini [A.D.] 800), the Late Prehistoric Period (A.D. 800-1700), and the Protohistoric Period (A.D. 1680-1720). Concentrations of Early Archaic sites (ca. 6000-2500 B.C.) have been identified approximately 100 kilometers south of Brooks AFB in Choke Canyon and at the nearby Applewhite Reservoir site (Black, 1989; Scott and Fox, 1982; Geo-Marine, Inc., 1995).

**Archaeological Investigations.** The earliest archaeological investigations of South and Central Texas focused on burned rock middens and ceramics and were conducted in the early part of the twentieth century as part of Works Progress Administration- (WPA-) sponsored projects. It is primarily this WPA data that serve as a background for constructing the general cultural chronologies.

Additional archaeological investigations (1940s through the 1960s) were conducted by the University of Texas, the National Park Service, and the Smithsonian Institution via the River Basin Survey Project. In the 1970s, a series of cultural resources management (CRM) programs and research projects produced more comprehensive databases for both regions.

In 1995, a reconnaissance survey was conducted at Brooks AFB (Geo-Marine, Inc., 1995). Results of this survey indicate that an estimated 485 acres have been highly disturbed by installation construction. The remaining 825 acres have been disturbed by surface grading, landscaping, or other types of activities



conducted since 1917. Approximately 52 acres were thought to have a high potential of containing intact archaeological resources. These 52 acres were more intensively surveyed and found to contain no evidence of any kind of occupation dating prior to 1917. The results of the 1995 archaeological investigation determined that no significant prehistoric or historic archaeological resources exist on Brooks AFB, and that the probability of finding surface archaeological artifacts or sites was low due to the extensive disturbance of the area. These findings were presented to the Texas SHPO within the context of the Brooks Air Force Base Historic Preservation Plan (Geo-Marine, Inc., 1995), and the SHPO has concurred (Appendix I).

### **3.5.6.2 Historic Buildings and Structures**

**Premilitary History.** The premilitary history of the Brooks AFB area began in 1519, when all of the land between Florida and the Rio Grande was claimed for the Spanish Crown. Exploration by the Spanish and the French continued through the 1600s and by the mid-1700s, a system of Catholic missions had been established along the San Antonio River. Large farmlands surrounded the missions and a 15-mile-long acequia system was dug to supply water for the crops.

In 1803, the United States purchased the Louisiana territory from France, generating an increased interest in the area now known as Texas. As the area rapidly colonized, discontent with Spanish rule increased and a war ensued that resulted in the independence of Mexico. By 1830, the Anglo-American population had increased so much that the Mexican government issued a decree prohibiting further colonization. The decree angered the colonists, who then attempted to form a separate state, marking the beginning of the Texas Revolution. In 1835, Presidente Antonio Lopez de Santa Ana led the Mexican army across the Rio Grande to end the rebellion. The march by Santa Ana culminated in the Battle of San Jacinto in spring 1836. Texas was declared independent of Mexico on March 2, 1836, and, after the defeat of Santa Ana at the Battle of San Jacinto, the Republic of Texas was formed. Texas was annexed by the United States in 1845.

Little is known about early land uses within the boundary of Brooks AFB; however, a review of 1903 U.S. Geological Survey (USGS) topographic maps indicates that three structures were present: the William Gembler farmstead (ca. 1890), the William Small Place (ca. 1851-1867), and an unidentified property that was sold to the U.S. Government in 1920 (Geo-Marine, Inc., 1995). None of these structures remain.

Adjacent to the installation, along the west boundary, are the remains of the historic acequia system. Dating to the 1700s, the best preserved of the acequias is the one near Mission Espada (approximately 0.5 mile southwest of Brooks AFB) that carried water over Piedras Creek (National Park Service, 1997). The San Juan Acequia is adjacent to the west base boundary and is also historically significant. Plans are underway to return water to this acequia in the near future. Acequia and mission structures are encompassed within the San Antonio Missions National Historical Park, which was established by the U.S. Congress in

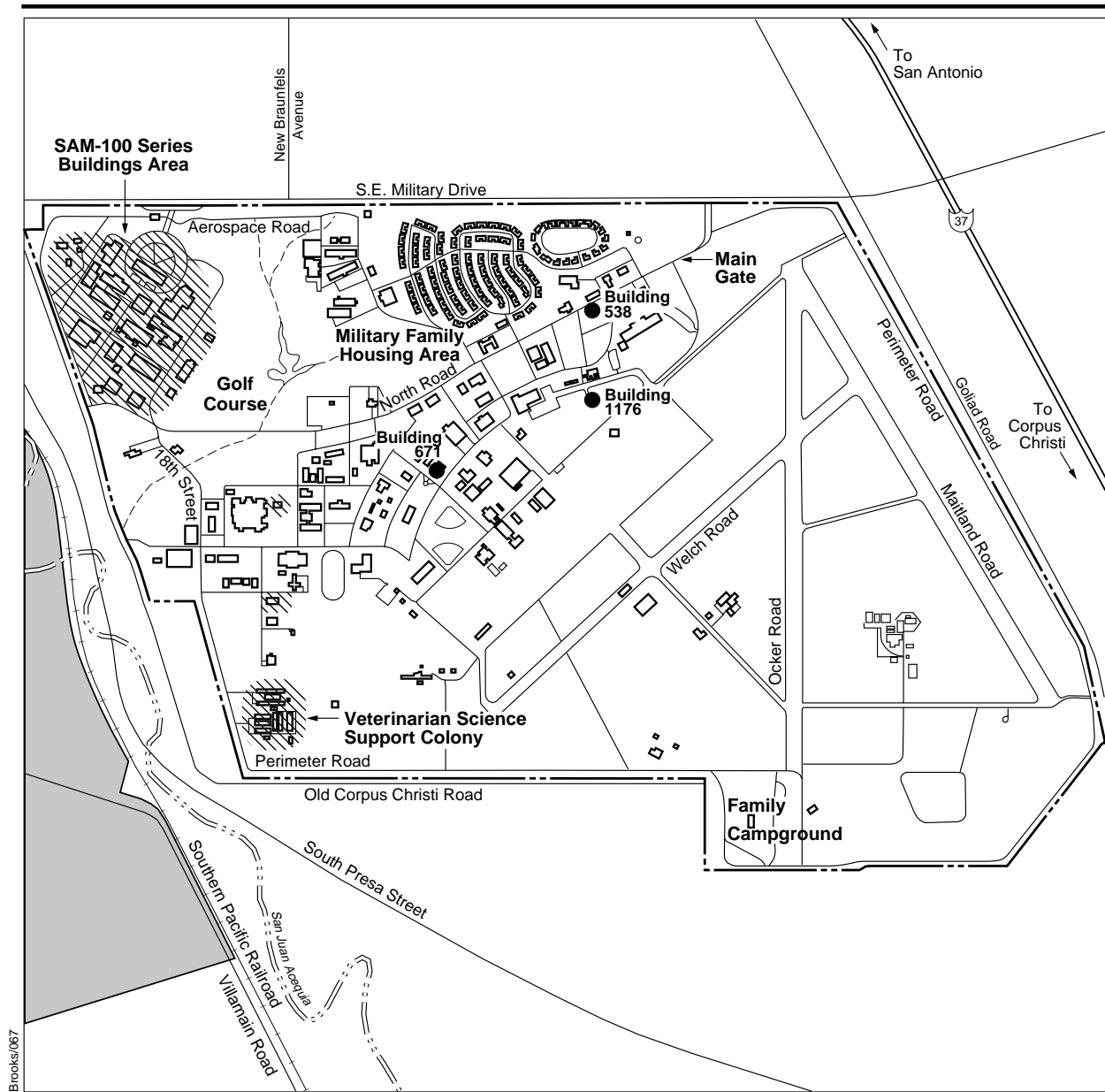
1978 (Figure 3.5-5). Four frontier missions, which were part of a colonization system that stretched across the Spanish southwest in the seventeenth, eighteenth, and nineteenth centuries, are preserved within the Park. These include Missions San Jose, San Juan, Espada, and Conception. In addition to the four missions and remains of the acequia system, the 819-acre San Antonio Missions National Historical Park encompasses other types of cultural and natural resources sites and is visited by more than 1.2 million visitors annually.

**Military History.** The site that is currently Brooks AFB was formerly Kelly Field No. 5. Groundbreaking ceremonies were held in 1917; in February 1918, the installation was renamed Brooks Field after Lt Sydney J. Brooks, who was killed in a plane crash in 1917 (currently buried west of Hangar 9 in a memorial park). The installation was established as a flight instructor training facility for the air service of the U.S. Army's Signal Corps and remained primarily a flight training center through World War II. Besides pilot training, other missions, such as aerial observation and the Balloon and Airship School, were conducted at Brooks Field at various times. During the World War II era, the size of the base and number of facilities grew. In 1947, the air service of the U.S. Army became the U.S. Air Force, and the name of Brooks Field was changed to Brooks AFB. During the late 1950s, Brooks AFB transitioned from a flight training center to a center for modern medical research, development, and education in support of the space program. This mission has continued to be a primary focus of the installation.

**Identification of Historic Buildings and Structures.** Facilities at Brooks AFB include World War I-, World War II-, and Cold War-era structures. A survey of World War I and World War II facilities constructed between 1917 and 1947 has been conducted (Geo-Marine, Inc., 1995) and Historic American Buildings Survey (HABS) Level IV documentation has been completed for 37 buildings that date prior to 1947 (Geo-Marine, Inc., 1995). Facility 671 (Hangar No. 9) was listed in the National Register in 1970 and was designated a National Historic Landmark in 1974 (see Figure 3.5-5). Built in 1918, it is the second oldest aircraft hangar still standing on a military base in the United States; it is the only known example of a World War I-era wooden hangar. Two additional buildings, Facilities 538 (Air Base Group Headquarters) and 1176 (Armory) (see Figure 3.5-5), have been determined eligible for listing in the National Register by the Texas SHPO. A Cold War-era historic building survey has also been completed (Earth Tech, Inc., and Planning Consultants Research, 1998). None of the 178 Cold War-era facilities evaluated was determined to be eligible for listing in the National Register, and the SHPO has concurred (see Appendix I). A study under the Man in Space historic context is currently in progress for the SAM-100 series buildings area and the Veterinarian Science Support Colony (see Figure 3.5-5). These properties may be historically significant for their associations with medical research supporting the American Space Program.

### **3.5.6.3 Traditional Resources.**

Traditional resources can include archaeological sites, burial sites, ceremonial areas, caves, mountains, water sources, plant habitat or gathering areas, or any other natural area important to a culture for religious or heritage reasons.



## Known and Potential Historic Properties

Figure 3.5-5

Significant traditional sites are subject to the same regulations and are afforded the same protection as other types of historic properties. To date, no traditional resources have been identified at Brooks AFB.

Prehistorically, the Native American groups affiliated with the Brooks AFB area included the Coahuiltecan social groups, such as the Payaya, who utilized the resources on and around Brooks AFB. However, the Coahuiltecan social group ceased to exist as an identifiable ethnic group in the 1800s. Presently, there are no federally recognized Native American tribes residing in the San Antonio Area. Detailed information about these groups can be found in various ethnographic data that have been compiled since the early 1900s (Black, 1986; Campbell, 1988; Fox, 1979; Hester, 1989; McGraw and Hindes, 1987; Ruecking, 1955a, 1955b; Shuetz, 1968, 1969). There are no federally recognized tribes in San Antonio.

To ensure that any Native American concerns relating to the transfer of Brooks AFB are adequately considered, consultation with the federally recognized tribes that have aboriginal ties to the San Antonio area has been initiated.

### **3.6 ENVIRONMENTAL JUSTICE**

#### **Background**

EO 12898, Environmental Justice, was issued by the President on February 11, 1994. Objectives of the EO, as it pertains to this EIS, include development of federal agency implementation strategies, identification of low-income and minority populations where proposed federal actions have disproportionately high and adverse human health and environmental effects, and participation of low-income and minority populations. Accompanying EO 12898 was a Presidential Transmittal Memorandum that referenced existing federal statutes and regulations to be used in conjunction with EO 12898. The memorandum addressed the use of the policies and procedures of the NEPA. Specifically, the memorandum indicates that, "Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 [NEPA], 42 U.S.C. section 4321 et. seq." Although an environmental justice analysis is not mandated by NEPA, DOD has directed that NEPA will be used as the primary mechanism to implement the provisions of the EO.

#### **Demographic Analysis**

Although EO 12898 provides no guidelines as to how to determine concentrations of low-income or minority populations, the demographic analysis provides information on the approximate locations of low-income and minority populations in the area potentially affected by the BCBP. Environmental impacts from the Proposed Action and alternatives would occur within Bexar County.

The 1990 Census of Population and Housing reports numbers of both low-income property and minority residents. Low-income status is reported as the number of families with income below poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing). Minority populations included in the census are identified as Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Hispanic; or Other. Based upon the 1990 Census of Population and Housing, Bexar County had a population of 1,185,394 persons. Of this total, 229,768 persons, or 19.4 percent (including 16.2 percent of all families), were low-income, and 689,245 persons, or 58.1 percent, were members of minority groups.

**THIS PAGE INTENTIONALLY LEFT BLANK**

## 4.0 ENVIRONMENTAL CONSEQUENCES

---

### 4.1 INTRODUCTION

This chapter discusses the potential environmental consequences associated with the Proposed Action and alternatives. To provide the context in which potential environmental impacts may occur, discussions of potential changes to the local communities, including population and employment, land use and aesthetics, transportation networks, and public utility systems, are included in this chapter. In addition, issues related to current and future management of hazardous materials and waste and solid waste are discussed. Impacts to the physical and natural environment are evaluated for geology and soils, water resources, air quality, noise, biological resources, and cultural resources. An environmental justice analysis was conducted to examine potential disproportionately high and adverse impacts to low-income and minority populations. These impacts may occur as a direct result of the proposed activities or as an indirect result of changes within the local communities.

Each section within this chapter discusses a separate resource area and describes the potential impacts resulting from implementation of the Proposed Action and alternatives. For most resource areas, discussion of potential impacts from implementation of the Outgrant Alternative (Scenarios A, B, and C) have been combined into one section because of the similarity of analysis results to the Proposed Action. The discussion of the No-Action Alternative is contained within a separate subsection for all resources. Possible mitigation measures to minimize or eliminate adverse environmental impacts are also presented, when applicable.

Cumulative impacts result from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (Council on Environmental Quality, 1978). Section 2.4 summarizes other future projects planned within the region around Brooks AFB over the next 20 years. These other projects are generally being planned and implemented within the context of CoSA's development plans for the area. As such, they are incorporated within the regional plans and projections for growth that were considered in developing the Proposed Action and Outgrant Alternative and conducting the EIS analysis (e.g., regional growth projections). In this sense, the cumulative impacts that are not accounted for in local and regional planning are those represented by future development of Brooks AFB property, and those impacts are addressed as part of the EIS analysis for each resource for the Proposed Action and alternatives. Cumulative impacts are addressed within each resource section in Chapter 4.0.

Means of mitigating substantial adverse environmental impacts that may result from implementation of the alternatives by property users are discussed, as required by NEPA. Potential mitigation measures are described for those

components likely to experience substantial and adverse changes under any or all of these alternatives. Potential mitigation measures depend upon the particular resource affected. In general, however, mitigation measures are defined in CEQ regulations as actions that include:

- Avoiding the impact altogether by not taking an action or certain aspect of the action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments.

Mitigation measures that are clearly required by law or standard industry practices are generally considered to be part of the Proposed Action and alternatives. Additional potential mitigation measures beyond those clearly required by law or standard practices are described for each resource area where appropriate. Such measures include those the Air Force could implement, those the property user could implement, those discretionary mitigations or choices available to other governmental bodies (e.g., zoning, permit conditions), or lease restrictions available to a possible property user.

Because most potential environmental impacts would result directly from the use by others, full responsibility for suggested mitigations would generally be borne by future property users. However, the Air Force may place specific restrictions in outgrants or deeds that would limit the use of the property, alert property users to special concerns or legal requirements, or provide for notice and reporting demands before taking actions affecting the property.

## **4.2 LOCAL COMMUNITY**

### **4.2.1 Community Setting**

#### **4.2.1.1 Proposed Action.**

An economic-demographic-forecasting and simulation model, developed by Regional Economic Modeling, Inc. (REMI), was used for the local community analysis in this document. The model is calibrated to many sub-national areas for forecasting and policy analysis. Simulations within the model are used to estimate the economic and demographic effects of the different land use development scenarios. The REMI model used was customized to the San Antonio MSA. It includes state- and county-specific data for industry-specific wage rates, production costs, employment, profitability, and sales prices, as well as consumer prices, housing prices, employment opportunity, population, state



and local government spending, investment, income, personal consumption, and many other variables.

A two-step process was used in the REMI modeling effort. First, a regional baseline or control forecast for the San Antonio MSA that uses a national forecast as one of the inputs was generated by the model. This represents the No-Action Alternative. This employment and population forecast is based on historical growth and trend data and reflects industry relationships with the national economy, as well as inter-industry relationships within the MSA before 2000. Second, the estimated direct employment increase projections associated with the BCBP (Scenarios A, B, and C) were input into the REMI model to generate forecasts for the local economy with the anticipated employment change in 2005, 2010, and 2020. The difference between the baseline or control forecast and the individual Scenario A, B, and C forecasts then give the direct, indirect, and induced employment, income, and population effects due to the direct employment changes projected for each scenario.

The direct employment change estimates projected for each scenario were generated based on the mix of land uses associated with that scenario. They represent estimates of the employment that could be generated if the mix of land uses and associated amounts of development actually materializes. There is clearly some degree of uncertainty in these estimates and, consequently, they should be regarded as upper limits to the amount of employment, income, and population growth that may be generated.

The REMI model's structure, the methodological approach used, and detailed model outputs are provided in Appendix H.

#### **4.2.1.1.1 Scenario A**

##### **Employment**

The mix of public/open space, mixed use, traditional neighborhood development, multi-family residential, light industrial, research and development, and retail commercial land uses in Scenario A is projected to generate a total of 1,140 additional direct jobs by 2005, 3,882 additional direct jobs by 2010, and 11,083 additional direct jobs by 2020. Construction of the various buildings and facilities identified in Scenario A, is projected to employ 76 construction workers per year between 2001-2005, 190 construction workers per year between 2006-2010, and 246 construction workers per year between 2011-2020. The cumulative addition of direct jobs over the 2001 to 2020 period, or level of direct employment by sector, is provided in Table H-4, Appendix H.

This level of employment directly attributable to the land uses in Scenario A, is projected to generate an additional direct and indirect employment of 2,140 by 2005, 7,146 by 2010, and 20,280 by 2020. These levels of employment would represent 0.21, 0.68, and 1.84 percent increases over the projected levels of employment without the BCBP by 2005, 2010, and 2020, respectively. The largest direct and indirect growth is projected to be in the services industry with employment levels of 1,030 by 2005, 3,522 by 2010, and 10,190 by 2020. The

services industry is followed, in descending order of magnitude, by employment growth in retail trade; construction; state and local government; and finance, insurance, and real estate by 2005. By 2020, the service industry is followed by retail trade; state and local government; non-durables manufacturing; and finance, insurance, and real estate (Table H-13, Appendix H).

Because project-related growth would represent a small percentage of the total projected regional growth, no significant impacts to employment are expected from implementation of Scenario A.

### **Income**

Personal income in the San Antonio MSA is projected to increase by \$85.4 million by 2005, \$344.7 million by 2010, and \$1.366 billion by 2020 as a result of implementing the development associated with Scenario A. These personal income increases would represent 0.17, 0.55, and 1.54 percent increases over the projected levels without the BCBP by 2005, 2010, and 2020, respectively (see Tables H-7 and H-8, Appendix H).

No significant impacts to income are expected from implementation of Scenario A.

### **Population**

Direct and indirect employment are projected to increase the San Antonio MSA population by 1,373 individuals by 2005, 5,993 by 2010, and 24,011 by 2020. These figures would represent increases of 0.08, 0.32, and 1.17 percent over the projected population of the metropolitan area without the BCBP by 2005, 2010, and 2020, respectively (Table H-14, Appendix H). A number of factors explain the low net projected population increase of 24,011 from the projected 20,280 jobs generated by 2020. These include the phenomenon of two-income or two-job households, an increase in labor force participation rates in response to new employment opportunities that would slow down the need for immigrants to fill the jobs, and an immigration time lag in response to the new jobs not filled by existing residents of the MSA.

Table H-14 also provides the breakdown of the projected population increase by age cohort. For the school-age population, the direct and indirect BCBP-related growth would represent increases of 0.08, 0.36, and 1.42 percent over the projected school-age population without the Scenario A land use development.

Because project-related growth would represent a small percentage of the total projected regional growth, no significant impacts to population are expected from implementation of Scenario A.

#### **4.2.1.1.2 Scenario B**

##### **Employment**

The mix of public/open space, mixed use, multi-family residential, light industrial, and research and development land uses in Scenario B is projected to generate a total of 938 additional direct jobs by 2005, 3,253 additional direct jobs by 2010, and 9,279 additional direct jobs by 2020. Construction of the various buildings and facilities identified in Scenario B is projected to employ 56 construction workers per year between 2001-2005, 137 construction workers per year between 2006-2010, and 180 construction workers per year between 2011-2020. The cumulative addition of direct jobs over the 2001 to 2020 period, or level of direct employment by sector, is provided in Table H-5, Appendix H.

This level of employment directly attributable to the land uses in Scenario B is projected to generate an additional direct and indirect employment of 2,029 by 2005, 6,952 by 2010, and 20,260 by 2020. These levels of employment would represent 0.21, 0.68, and 1.84 percent increases over the projected levels of employment without the BCBP by 2005, 2010, and 2020, respectively. The largest direct and indirect growth are projected to be in the services industry with employment levels of 781 by 2005, 2,724 by 2010, and 8,124 by 2020. The services industry is followed, in descending order of magnitude, by employment growth in retail trade; durable manufacturing; retail trade; construction; and finance, insurance and real estate by 2005. By 2020, the service industry is followed by retail trade; durable manufacturing; retail trade; state and local government; and finance, insurance, and real estate (Table H-15, Appendix H).

Because project-related growth would represent a small percentage of the total projected regional growth, no significant impacts to employment are expected from implementation of Scenario B.

##### **Income**

Personal income in the San Antonio MSA is projected to increase by \$87.5 million by 2005, \$358.5 million by 2010, and \$1.448 billion by 2020 as a result of implementing the development associated with Scenario B. These personal income increases would represent 0.17, 0.55, and 1.52 percent increases over the projected levels without the BCBP by 2005, 2010, and 2020, respectively, and are actually higher than the Scenario A personal income figures by 2, 4, and 6 percent, respectively. This is probably due to the larger mix of higher earnings direct light industrial employment and much lower direct retail employment under Scenario B than Scenario A (see Tables H-9 and H-10, Appendix H).

No significant impacts to income are expected from implementation of Scenario B.

## Population

The direct and indirect employment are projected to increase the San Antonio MSA population by 1,323 individuals by 2005, 5,755 by 2010, and 23,003 by 2020. These figures would represent increases of 0.08, 0.31, and 1.12 percent over the projected population of the metropolitan area without the BCBP by 2005, 2010, and 2020, respectively (Table H-16, Appendix H). A number of factors explain the low net projected population increase of 23,003 from the projected 20,260 jobs generated by 2020. These include the phenomenon of two-income or two-job households, an increase in labor force participation rates in response to new employment opportunities that would slow down the need for immigrants to fill the jobs, and an immigration time lag in response to the new jobs not filled by existing residents of the MSA.

Table H-16 also provides the breakdown of the projected population increase by age cohort. For the school-age population, the direct and indirect BCBP-related growth would represent increases of 0.08, 0.35, and 1.36 percent over the projected school-age population without the Scenario B land use development.

Because project-related growth would represent a small percentage of the total projected regional growth, no significant impacts to population are expected from implementation of Scenario B.

### 4.2.1.1.3 Scenario C

## Employment

The mix of public/open space, mixed use, traditional neighborhood development, multi-family residential, light industrial, and research and development land uses in Scenario C is projected to generate a total of 1,457 new direct jobs by 2005, 5,050 new direct jobs by 2010, and 14,373 new direct jobs by 2020. Construction of the various buildings and facilities identified in Scenario C is projected to employ 84 construction workers per year between 2001-2005, 211 construction workers per year between 2006-2010, and 274 construction workers per year between 2011-2020. The cumulative addition of direct jobs over the 2001-2020 period, or level of direct employment by Standard Industrial Classification Code, is given in Table H-6, Appendix H.

This level of employment directly attributable to the land uses in Scenario C is projected to generate an additional direct and indirect employment of 2,839 by 2005, 9,649 by 2010, and 27,540 by 2020. These levels of employment would represent 0.28, 0.92, and 2.49 percent increases over the projected levels of employment without the BCBP project by 2005, 2010, and 2020, respectively.

The largest direct and indirect growth are projected to be in the services industry with employment levels of 1,370 by 2005, 4,636 by 2010, and 13,400 by 2020. The services industry is followed, in descending order of magnitude, by employment growth in retail trade; non-durables manufacturing; construction; and finance, insurance, and real estate by 2005. By 2020, the service industry is

followed by retail trade; non-durables manufacturing; state and local government; and finance, insurance, and real estate (Table H-17, Appendix H).

Because project-related growth would represent a small percentage of the total projected regional growth, no significant impacts to employment are expected from implementation of Scenario C.

### **Income**

Personal income in the San Antonio MSA is projected to increase by \$116.6 million by 2005, \$477.4 million by 2010, and \$1.90 billion by 2020 as a result of implementing the development associated with Scenario C. These personal income increases would represent 0.23, 0.77, and 2.14 percent increases over the projected levels without the BCBP by 2005, 2010, and 2020, respectively, and are 36 percent, 38 percent, and 39 percent higher than the Scenario A personal income figures, respectively (see Tables H-11 and H-12, Appendix H).

No significant impacts to income are expected from implementation of Scenario C.

### **Population**

The direct and indirect employment is projected to increase the San Antonio MSA population by 1,817 individuals by 2005, 8,053 by 2010, and 32,450 by 2020. These figures would represent increases of 0.10, 0.43, and 1.58 percent over the projected population of the metropolitan area without the BCBP by 2005, 2010, and 2020, respectively (Table H-18, Appendix H). A number of factors explain the low net projected population increase of 32,450 from the projected 27,540 jobs generated by 2020. These include the phenomenon of two-income or two-job households, an increase in labor force participation rates in response to new employment opportunities that would slow down the need for immigrants to fill the jobs, and an immigration time lag in response to the new jobs not filled by existing residents of the MSA.

Table H-18 also gives the breakdown of the projected population increase by age cohort. For the school-age population, the direct and indirect BCBP-related growth would represent increases of 0.31, 0.48, and 1.92 percent over the projected school-age population without the Scenario C land use development.

Because project-related growth would represent a small percentage of the total projected regional growth, no significant impacts to population are expected from implementation of the Proposed Action.

**Mitigation Measures.** Because no adverse impacts have been identified, no mitigation measures are required.

**Cumulative Impacts.** As discussed above, the Proposed Action would contribute only a very small percentage (overall less than 3 percent) of the total projected regional growth. Therefore, implementation of the proposed activities

would not contribute to cumulative impacts when considered in conjunction with other proposed projects in the region.

#### **4.2.1.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts to employment, income, and population in the San Antonio MSA would be the same as described for the Proposed Action for Scenarios A, B, and C, respectively.

**Mitigation Measures.** Because no adverse impacts have been identified, no mitigation measures are required.

**Cumulative Impacts.** As under the Proposed Action, the Outgrant Alternative would contribute only a very small percentage of the total regional projected growth. Therefore, implementation of the proposed activities would not contribute to cumulative impacts when considered in conjunction with other proposed projects in the region.

#### **4.2.1.3 No-Action Alternative**

##### **Employment**

Employment in the San Antonio MSA is projected to increase from 1,003,290 in 2005, to 1,049,531 in 2010, and to 1,104,518 in 2020, a growth of 10.1 percent between 2005 and 2020. The sectors projected to have the most significant growth increase between 2005 and 2020 are services (19.3 percent); state and local government (14 percent); and finance, insurance, and real estate (4.4 percent). The manufacturing sector is projected to decline by 2.6 percent (Table H-19, Appendix H).

Employment levels at Brooks AFB are projected to stay constant at the present level of 3,844 civilian and military personnel over the 2001 to 2020 period without implementation of the BCBP.

No significant impacts to employment are expected from the No-Action Alternative.

##### **Income**

Personal income in the San Antonio MSA is projected to increase to \$50.04 billion by 2005, to \$61.7 billion by 2010, and to \$88.5 billion by 2020, representing an increase of 76 percent between 2005 and 2020.

No significant impacts to income are expected from the No-Action Alternative.

##### **Population**

The San Antonio MSA, with an estimated population of 1.54 million in 1998, is projected to grow to 1.73 million by 2005, to 1.85 million by 2010, and to 2.06 million by 2020, representing an addition of 120,000 individuals between

2005 and 2010, and 210,000 between 2010 and 2020. Between 2005 and 2020, the population is projected to increase by 18.8 percent.

The school-age population is projected to reach 416,737 by 2005, 445,097 by 2010, and 505,441 by 2020, representing a 21.3 percent increase between 2005 and 2020.

No significant impacts to population are expected from the No-Action Alternative.

**Mitigation Measures.** Because no adverse impacts have been identified, no mitigation measures are required.

**Cumulative Impacts.** No population, employment, or income impacts have been identified for the No-Action Alternative. Therefore, cumulative impacts are not expected.

#### **4.2.2 Land Use and Aesthetics**

The following discussion focuses on potential impacts to land use and aesthetics from implementation of the Proposed Action, Outgrant Alternative, and the No-Action Alternative.

##### **4.2.2.1 Proposed Action.**

Under the Proposed Action, land uses proposed for Scenarios A, B, and C would be compatible with surrounding existing and planned future land uses.

##### **4.2.2.1.1 Scenario A.**

Under Scenario A, development would be expanded to fill in vacant areas of the base. In addition, light industrial land uses would be allowed on the east portion of the base. Emphasis would be placed on the expansion of research and development land uses. The future land uses proposed under Scenario A would achieve CoSA's goals and objectives for the area by encouraging economic development. Appropriate planning would create cohesive and aesthetically pleasing development, and appropriate design, siting of facilities, and landscaping would be used to preclude incompatibilities. Development is expected to occur in accordance with CoSA Comprehensive Master Plan, the South Central San Antonio Community Plan, and the Comprehensive Economic Development Plan for South Central San Antonio. As part of the request for proposal for developers interested in the BCBP, a Land Use and Urban Design Plan would be required. This plan must provide elements that encourage "connectivity and leverage" with the area's strengths, features, and opportunities, including the San Antonio River and historic missions. Land use and community plans recognize the historic qualities of off-base adjacent properties, and development at Brooks AFB would be required to be compatible with off-base historic properties. Because land uses associated with Scenario A would be compatible with surrounding land uses and community land use plans, no land use impacts are anticipated.

In addition, new development is expected to maintain the architectural theme present on the base. Appropriate design and landscaping is expected to be used to maintain the medium-quality viewsheds. The planning and design of new facilities on the base would incorporate requirements from CoSA Unified Development Code.

Under the BCBP, potential new development along the west base boundary, within the viewshed of the San Antonio Missions National Historical Park, would be minimal. The northwest portion of the base is currently developed, with the exception of two small parcels of undeveloped open space that could be used for Mixed Use or Research and Development under Scenario A. Any new construction in this area is not expected to be visible from National Park Service property. The central portion of the west boundary is open space associated with the golf course and the Berg's Mill Creek 100-year floodplain that exits along the base on the west boundary. This area is generally identified as Public/Open Space with no large-scale construction expected. The south portion of the west base boundary, which is slated for Research and Development uses, is at a slightly lower elevation and is further east than the rest of the base boundary; therefore, new development in this area is not expected to negatively impact the Park's viewshed. This area is currently screened from the view of National Park Service properties by mature vegetation on National Park Service property as well as privately owned parcels. While multi-story buildings, if constructed in this area, might be visible from National Park Service property, this type of construction is unlikely given the identified land use, the amount of property available, and the type and layout of current development on the base. In addition, the San Antonio Missions National Park would be protected under the zoning ordinance proposed by CoSA to establish Viewshed Protection Districts.

Any development proposed on Brooks AFB as part of the BCBP would be in compliance with this zone ordinance and would not create an aesthetic impact on the Park. Because the planning and design of new facilities required under Scenario A would maintain the existing viewsheds and incorporate the requirements of CoSA Unified Development Code, no impacts to aesthetics are anticipated.

#### **4.2.2.1.2 Scenario B.**

As described under Scenario A, development would occur within vacant areas of the base. Under Scenario B, light industrial land uses would be expanded to the west. Less emphasis would be placed on expansion of the research and development land uses, and more of the base would be used for public/open space land uses. Because land uses associated with Scenario B would be compatible with surrounding land uses and community land use plans, no land use impacts are anticipated.

As discussed under Scenario A, the existing viewshed of the historic San Antonio Missions National Park would not be impacted by the development associated with the BCBP under Scenario B. Because the planning and design of new facilities under Scenario B would maintain the medium-quality viewsheds and



incorporate the requirements of CoSA Unified Development Code, no impacts to aesthetics are anticipated.

#### **4.2.2.1.3 Scenario C.**

As described under Scenario A, development would occur in vacant areas of the base. The area of the base where light industrial and research and development activities are featured would be the same as that described for Scenario B. More emphasis would be placed on expansion of the Mixed Use land use; less would be placed on public/open space land uses. As a result, the intensity of development would be greater under Scenario C than under Scenarios A and B. Because land uses associated with Scenario C would be compatible with surrounding land uses and community land use plans, no land use impacts are anticipated.

As discussed under Scenario A, the existing viewshed of the historic San Antonio Missions National Park would not be impacted by the development associated with the BCBP under Scenario C. Because the planning and design of new facilities under Scenario C would maintain the existing viewsheds and incorporate the requirements of CoSA Unified Development Code; therefore, no impacts to aesthetics are anticipated.

**Mitigation Measures.** Because there are no adverse land use or aesthetics impacts have been identified, mitigation measures are not required.

**Cumulative Impacts.** No land use or aesthetics impacts have been identified for the Proposed Action. Therefore, implementation of the proposed activities would not contribute to cumulative impacts when considered in conjunction with other projects in the region.

#### **4.2.2.2 Outgrant Alternative.**

Under the Outgrant Alternative, land use and aesthetics impacts would be similar to those described under the Proposed Action for Scenarios A, B, and C.

**Mitigation Measures.** Because no adverse impacts have been identified, mitigation measures are not required.

**Cumulative Impacts.** No land use or aesthetics impacts have been identified for the Outgrant Alternative. Therefore, implementation of the proposed activities would not contribute to cumulative impacts when considered in conjunction with other proposed projects in the region.

#### **4.2.2.3 No-Action Alternative.**

Under the No-Action Alternative, no physical changes to on-base land use from baseline conditions would occur. Therefore, no impacts are anticipated. However, much of the base, would remain vacant and would not contribute to the economic development of the region.

**Mitigation Measures.** Because there are no adverse impacts under the No-Action Alternative, mitigation measures are not required.

**Cumulative Impacts.** No land use or aesthetics impacts have been identified for the No-Action Alternative. Therefore, cumulative impacts are not expected.

#### **4.2.3 Transportation**

This section discusses potential impacts to the transportation systems within the ROI from implementing the Proposed Action and alternatives. The trip distribution analysis was based on the existing and proposed access points described in Chapter 2.0 and the relative locations of the proposed land uses. This analysis assumes that the West Gate would be reopened and utilized as an access point for the Proposed Action and alternatives. Future PHV was determined by distributing anticipated project-related traffic to the key roadways surrounding Brooks AFB, using the same distribution patterns that occur under baseline conditions. An average PHV increase of 0.5 percent over baseline conditions was assumed.

Future LOS projections were based upon the number of vehicles projected to utilize key roadways during the peak hour. Average roadway capacities were calculated based on the number of traffic lanes, average vehicle speeds, and an even distribution of traffic in each direction.

##### **4.2.3.1 Proposed Action.**

The evaluation of potential impacts to roadway conditions focuses on the LOS of 25 sections of roadway surrounding Brooks AFB. The projected LOS for Scenarios A, B, and C are presented in Tables 4.2-1, 4.2-2, and 4.2-3, respectively, for these road segments for 2005, 2010, and 2020.

##### **4.2.3.1.1 Scenario A.**

Under Scenario A, 18 of the 25 road segments would operate at LOS A, B, or C by 2020 (see Table 4.2-1). However, LOS on the remaining road segments is projected to degrade to LOS D or lower by 2020. These segments are described below:

- I-37 north of S.E. Military Drive would operate at LOS D in 2020 compared to LOS C under baseline (1998) conditions
- S.E. Military Drive between Goliad Road and the Main Gate would operate at LOS D in 2020 compared to LOS B under baseline (1998) conditions
- Goliad Road between S.E. Military Drive and I-410 would operate at LOS D in 2020 compared to LOS B under baseline (1998) conditions

**Table 4.2-1. Peak-Hour Traffic Volumes and LOS on Key Roads – Scenario A**

Roadway	Segment	Capacity	1998		2005		2010		2020	
			PHV	LOS	PHV	LOS	PHV	LOS	PHV	LOS
I-37	North of S.E. Military Drive	7,000	4,100	C	4,200	C	4,450	C	5,050	D
I-37	Between S.E. Military Drive and I-410	7,000	3,100	B	3,200	B	3,500	B	4,150	C
I-37	South of I-410	7,000	4,100	C	4,150	C	4,300	C	4,600	C
I-410	East of I-37	7,000	2,500	B	2,550	B	2,700	B	3,000	B
I-410	Between I-37 and South Presa Street	7,000	2,500	B	2,600	B	2,900	B	3,650	C
I-410	West of South Presa Street	7,000	2,200	B	2,300	B	2,550	B	3,250	B
S.E. Military Drive	Between I-37 and Goliad Road	8,400	2,500	A	2,650	B	3,100	B	4,250	C
S.E. Military Drive	Between Goliad Road and Main Gate	8,400	2,300	B	3,300	B	4,050	B	5,950	D
S.E. Military Drive	Between Main Gate and New Braunfels Avenue	8,400	1,200	A	1,250	A	1,350	A	1,650	A
S.E. Military Drive	Between New Braunfels Avenue and HSW Gate	8,400	3,500	B	3,550	B	3,650	B	3,950	B
S.E. Military Drive	Between HSW Gate and South Presa Street	8,400	1,600	A	1,950	A	2,100	A	2,400	A
S.E. Military Drive	West of South Presa Street	8,400	2,200	A	2,300	A	2,600	B	3,250	B
South Presa Street	North of S.E. Military Drive	5,600	600	A	800	A	800	A	1,100	A
South Presa Street	Between S.E. Military Drive and Henderson Court	5,600	600	A	750	A	1,000	A	1,750	B
South Presa Street	Between Henderson Court and Old Corpus Christi Road (new southwest access point)	5,600	650	B	900	C	1,400	D	2,650	E
South Presa Street	Between Old Corpus Christi Road (new southwest access point) and new south access point	2,800	650	B	700	B	1,100	C	2,100	E
South Presa Street	Between New South Gate and I-410	2,800	650	B	750	C	1,250	D	2,550	E
South Presa Street	South of I-410	2,800	450	B	500	B	500	B	500	B
Goliad Road	North of S.E. Military Drive	5,600	950	B	1,000	B	1,100	B	1,400	B
Goliad Road	Between S.E. Military Drive and I-410	2,800	600	B	700	B	900	C	1,750	D
New Braunfels Avenue	North of S.E. Military Drive	2,800	950	C	1,050	C	1,250	D	1,700	D
New Braunfels Avenue	North of Pecan Valley Drive	2,800	1,150	C	1,200	C	1,250	D	1,400	D
Pecan Valley Drive	East of New Braunfels Avenue	5,600	400	A	450	A	600	A	900	A
Pecan Valley Drive	South of Goliad Road	5,600	1,250	A	1,300	A	1,350	A	1,400	A
Henderson Court	Between West Gate and South Presa Street	5,600	250	A	350	A	600	A	1,250	B

I = Interstate  
 LOS = level of service  
 PHV = peak-hour volume

**Table 4.2-2. Peak-Hour Traffic Volumes and LOS on Key Roads – Scenario B**

Roadway	Segment	Capacity	1998		2005		2010		2020	
			PHV	LOS	PHV	LOS	PHV	LOS	PHV	LOS
I-37	North of S.E. Military Drive	7,000	4,100	C	4,150	C	4,300	C	4,650	C
I-37	Between S.E. Military Drive and I-410	7,000	3,100	B	3,200	B	3,350	B	3,800	C
I-37	South of I-410	7,000	4,100	C	4,150	C	4,250	C	4,500	C
I-410	East of I-37	7,000	2,500	B	2,550	B	2,650	B	2,950	B
I-410	Between I-37 and South Presa Street	7,000	2,500	B	2,600	B	2,900	B	3,500	C
I-410	West of South Presa Street	7,000	2,200	B	2,300	B	2,550	B	3,150	B
S.E. Military Drive	Between I-37 and Goliad Road	8,400	2,500	A	2,600	B	2,850	B	3,550	B
S.E. Military Drive	Between Goliad Road and Main Gate	8,400	2,300	B	3,200	B	3,600	B	4,750	C
S.E. Military Drive	Between Main Gate and New Braunfels Avenue	8,400	1,200	A	1,200	A	1,250	A	1,400	A
S.E. Military Drive	Between New Braunfels Avenue and HSW Gate	8,400	3,500	B	3,500	B	3,600	B	3,750	B
S.E. Military Drive	Between HSW Gate and South Presa Street	8,400	1,600	A	1,900	A	1,950	A	2,050	A
S.E. Military Drive	West of South Presa Street	8,400	2,200	A	2,300	A	2,500	B	3,100	B
South Presa Street	North of S.E. Military Drive	5,600	600	A	650	A	750	A	1,050	A
South Presa Street	Between S.E. Military Drive and Henderson Court	5,600	600	A	750	A	1,100	A	1,950	B
South Presa Street	Between Henderson Court and Old Corpus Christi Road (new southwest access point)	5,600	650	B	900	C	1,450	D	2,700	E
South Presa Street	Between Old Corpus Christi Road (new southwest access point) and new south access point	2,800	650	B	750	B	1,150	C	1,950	E
South Presa Street	Between New South Gate and I-410	2,800	650	B	750	C	1,250	D	2,350	E
South Presa Street	South of I-410	2,800	450	B	450	B	450	B	450	B
Goliad Road	North of S.E. Military Drive	5,600	950	B	950	B	1,050	B	1,200	B
Goliad Road	Between S.E. Military Drive and I-410	2,800	600	B	650	B	750	C	1,450	D
New Braunfels Avenue	North of S.E. Military Drive	2,800	950	C	1,000	C	1,050	C	1,200	C
New Braunfels Avenue	North of Pecan Valley Drive	2,800	1,150	C	1,200	C	1,200	C	1,250	D
Pecan Valley Drive	East of New Braunfels Avenue	5,600	400	A	450	A	450	A	500	A
Pecan Valley Drive	South of Goliad Road	5,600	1,250	A	1,300	A	1,300	A	1,350	A
Henderson Court	Between West Gate and South Presa Street	5,600	250	A	350	A	600	A	1,050	B

I = Interstate  
 LOS = level of service  
 PHV = peak-hour volume

**Table 4.2-3. Peak-Hour Traffic Volumes and LOS on Key Roads – Scenario C**

Roadway	Segment	Capacity	1998		2005		2010		2020	
			PHV	LOS	PHV	LOS	PHV	LOS	PHV	LOS
I-37	North of S.E. Military Drive	7,000	4,100	C	4,200	C	4,400	C	4,900	C
I-37	Between S.E. Military Drive and I-410	7,000	3,100	B	3,200	B	3,400	B	4,000	C
I-37	South of I-410	7,000	4,100	C	4,150	C	4,250	C	4,550	C
I-410	East of I-37	7,000	2,500	B	2,550	B	2,700	B	3,000	B
I-410	Between I-37 and South Presa Street	7,000	2,500	B	2,600	B	2,900	B	3,650	C
I-410	West of South Presa Street	7,000	2,200	B	2,300	B	2,550	B	3,250	B
S.E. Military Drive	Between I-37 and Goliad Road	8,400	2,500	A	2,650	B	3,000	B	3,950	B
S.E. Military Drive	Between Goliad Road and Main Gate	8,400	2,300	B	3,250	B	3,900	B	5,500	C
S.E. Military Drive	Between Main Gate and New Braunfels Avenue	8,400	1,200	A	1,250	A	1,300	A	1,500	A
S.E. Military Drive	Between New Braunfels Avenue and HSW Gate	8,400	3,500	B	3,550	B	3,650	B	3,900	B
S.E. Military Drive	Between HSW Gate and South Presa Street	8,400	1,600	A	1,900	A	1,950	A	2,100	A
S.E. Military Drive	West of South Presa Street	8,400	2,200	A	2,300	A	2,500	A	3,100	B
South Presa Street	North of S.E. Military Drive	5,600	600	A	650	A	750	A	1,050	A
South Presa Street	Between S.E. Military Drive and Henderson Court	5,600	600	A	750	A	1,050	A	1,900	B
South Presa Street	Between Henderson Court and Old Corpus Christi Road (new southwest access point)	5,600	650	B	900	C	1,450	D	2,800	F
South Presa Street	Between Old Corpus Christi Road (new southwest access point) and new south access point	2,800	650	B	700	B	1,100	C	2,100	E
South Presa Street	Between New South Gate and I-410	2,800	550	B	750	C	1,250	D	2,500	E
South Presa Street	South of I-410	2,800	450	B	450	B	450	B	450	B
Goliad Road	North of S.E. Military Drive	5,600	950	B	1,000	B	1,100	B	1,350	B
Goliad Road	Between S.E. Military Drive and I-410	2,800	600	B	650	B	850	C	1,600	D
New Braunfels Avenue	North of S.E. Military Drive	2,800	950	C	1,000	C	1,100	C	1,250	D
New Braunfels Avenue	North of Pecan Valley Drive	2,800	1,150	C	1,200	C	1,200	D	1,300	D
Pecan Valley Drive	East of New Braunfels Avenue	5,600	400	A	450	A	450	A	550	A
Pecan Valley Drive	South of Goliad Road	5,600	1,250	A	1,300	A	1,300	A	1,350	A
Henderson Court	Between West Gate and South Presa Street	5,600	250	A	350	A	600	A	1,300	B

I = Interstate  
 LOS = level of service  
 PHV = peak-hour volume

- Two segments of South Presa Street (between the new access points on the south and southwest portion of the base, and between the new access point on the south and I-410) would operate at LOS E in 2020 compared to LOS C under baseline (1998) conditions
- Two segments of New Braunfels Avenue (between S.E. Military Drive and Pecan Valley Drive, and north of Pecan Valley Drive) would operate at LOS D in 2020 compared to LOS C under baseline (1998) conditions. However, the segment north of Pecan Valley Drive would operate at LOS D by 2020 under the No-Action Alternative as a result of regional growth.

The results of the analysis of afternoon PHV at key intersections indicate that the Main Gate is utilized more often than other gates. Under Scenario A, three additional access points would be provided for easier access to new on-base development and alleviate impacts to roadways near the Main Gate. The new access point at New Braunfels Avenue and the two new access points on the south and southwest side of the base would provide access to the newly developed areas of the base. Direct access would be provided to New Braunfels Avenue without having to use S.E. Military Drive. The two new access gates on the south side of the base would utilize South Presa Street for access from the west and south.

#### **4.2.3.1.2 Scenario B.**

Potential impacts under Scenario B would be similar to those described for Scenario A. Table 4.2-2 provides a summary of the LOS for the 25 road segments for 2005, 2010, and 2020. Under Scenario B, 20 of the 25 road segments would operate at LOS A, B, or C by 2020 (see Table 4.2-2). However, LOS on the remaining road segments is projected to degrade to LOS D or lower by 2020. These segments are described below:

- Three segments of South Presa Street between Henderson Court and I-410 would operate at LOS E in 2020 compared to LOS B under baseline (1998) conditions. Two of these segments (between Henderson Court and the new access point on the southwest and between the new access point on the south and I-410) would operate at LOS D by 2010
- Goliad Road between S.E. Military Drive and I-410 would operate at LOS D in 2020 compared to LOS B under baseline (1998) conditions
- New Braunfels Avenue, north of Pecan Valley Drive, would operate at LOS D in 2020 compared to LOS C under baseline (1998) conditions. However, the segment north of Pecan Valley Drive would operate at LOS D by 2020 under the No-Action Alternative as a result of regional growth.

Under Scenario B, two additional access points would be provided on the south and southwest side of the base to provide easier access to new on-base

development and alleviate impacts to roadways near the Main Gate. These new access points would provide access from South Presa Street.

#### **4.2.3.1.3 Scenario C.**

Potential impacts under Scenario C would be similar to those described for Scenarios A and B. Table 4.2-3 provides a summary of the LOS at the 25 road segments for 2005, 2010, and 2020. Under Scenario C, 19 of the 25 road segments would operate at LOS A, B, or C by 2020 (see Table 4.2-3). However, LOS on the remaining road segments is projected to degrade to LOS D or lower by 2020. These segments are described below:

- South Presa Street between the new access point on the southwest side of the base and I-410 would operate at LOS E by 2020 compared to LOS B under baseline (1998) conditions. The segment of South Presa Street between the new access point on the south side of the base and I-410 would operate at LOS D by 2010
- South Presa Street between Henderson Court and the new access point on the southwest side of the base would operate at LOS D by 2010 and LOS F by 2020 compared to LOS B under baseline (1998) conditions
- Goliad Road between S.E. Military Drive and I-410 would operate at LOS D in 2020 compared to LOS B under baseline (1998) conditions
- Two segments of New Braunfels Avenue (between S.E. Military Drive and Pecan Valley Drive and north of Pecan Valley Drive) would operate at LOS D in 2020 compared to LOS C under baseline (1998) conditions. However, the segment north of Pecan Valley Drive would operate at LOS D by 2020 under the No-Action Alternative as a result of regional growth.

Under Scenario C, two additional access points would be provided on the south and southwest sides of the base to provide easier access to new on-base development and alleviate impacts to roadways near the Main Gate. These new access points would provide access from South Presa Street.

**Mitigation Measures.** Because there are only minimal adverse impacts associated with implementation of the Proposed Action, mitigation measures are not required. However, measures are available to bring these segments to an acceptable LOS by 2020. Local planning agencies can consider location, effectiveness, and the cost of improvements required to meet regional LOS recommendations. Implementation of mitigation measures may require modifications to the local road network such as additional traffic lanes and intersection improvements. These improvements are not expected to have adverse effects on the environment. Voluntary measures that could be implemented to reduce traffic on the road network include carpool and vanpool programs, utilization of available mass transit, or flexible work schedules that would allow employees to travel to work during less congested hours.

**Cumulative Impacts.** Because the Proposed Action represents only a very small percentage of the total regional projected growth, cumulative impacts are not expected.

#### **4.2.3.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts would be the same as those described for the Proposed Action for Scenarios A, B, and C.

**Mitigation Measures.** Because only minimal adverse impacts would result from implementation of the Outgrant Alternative, mitigation measures are not required. However, measures available to reduce these impacts are the same as those described for the Proposed Action.

**Cumulative Impacts.** Because the Outgrant Alternative represents only a very small percentage of the total regional projected growth, cumulative impacts are not expected.

#### **4.2.3.3 No-Action Alternative.**

Under the No-Action Alternative, as a result of regional growth (unassociated with implementation of the Proposed Action or alternatives), one roadway is projected to be operating at LOS D by 2020 (Table 4.2-4). New Braunfels Avenue, north of Pecan Valley Drive, would operate at LOS D in 2020 compared to LOS C under baseline (1998) conditions.

Because the BCBP would not be implemented and no increase in base-related traffic over the 20-year analysis period is projected, all increases in traffic volumes and associated degradations in LOS on key road segments would be associated with regional growth.

On-base roadways would continue to operate at existing levels and no impacts are expected.

**Mitigation Measures.** Because there are no adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** No transportation impacts have been identified for the No-Action Alternative; therefore, cumulative impacts are not expected.

#### **4.2.4 Utilities**

This section discusses potential impacts to the utilities systems within the ROI from implementation of the Proposed Action, Outgrant Alternative, and the No-Action Alternative.

It is anticipated that local utility providers will be able to accomplish upgrades to systems where necessary. Effects of implementing the Proposed Action and Outgrant Alternative were assessed by comparing projected demand under each land use scenario to the projected demand under the No-Action Alternative for



**Table 4.2-4. Peak-Hour Traffic Volumes and LOS on Key Roads - No-Action Alternative**

Roadway	Segment	Capacity	1998		2005		2010		2020	
			PHV	LOS	PHV	LOS	PHV	LOS	PHV	LOS
I-37	North of S.E. Military Drive	7,000	4,100	C	4,200	C	4,350	C	4,450	C
I-37	Between S.E. Military Drive and I-410	7,000	3,100	B	3,200	B	3,300	B	3,350	B
I-37	South of I-410	7,000	4,100	C	4,200	C	4,350	C	4,450	C
I-410	East of I-37	7,000	2,500	B	2,600	B	2,650	B	2,700	B
I-410	Between I-37 and South Presa Street	7,000	2,500	B	2,600	B	2,650	B	2,700	B
I-410	West of South Presa Street	7,000	2,200	B	2,300	B	2,300	B	2,400	B
S.E. Military Drive	Between I-37 and Goliad Road	8,400	2,500	A	2,600	B	2,650	B	2,700	B
S.E. Military Drive	Between Goliad Road and Main Gate	8,400	2,300	B	3,100	B	3,200	B	3,250	B
S.E. Military Drive	Between Main Gate and New Braunfels Avenue	8,400	1,200	A	1,250	A	1,250	A	1,300	A
S.E. Military Drive	Between New Braunfels Avenue and HSW Gate	8,400	3,500	B	3,600	B	3,700	B	3,800	B
S.E. Military Drive	Between HSW Gate and South Presa Street	8,400	1,600	A	1,950	A	2,000	A	2,050	A
S.E. Military Drive	West of South Presa Street	8,400	2,200	A	2,250	A	2,300	A	2,400	A
South Presa Street	North of S.E. Military Drive	5,600	600	A	650	A	650	A	650	A
South Presa Street	Between S.E. Military Drive and Henderson Court	5,600	600	A	650	A	650	A	650	A
South Presa Street	Between Henderson Court and Old Corpus Christi Road (New Southwest Gate)	2,800	650	B	650	B	650	B	650	B
South Presa Street	Between Old Corpus Christi Road (New Southwest Gate) and New South Gate	2,800	650	B	600	B	600	B	600	B
South Presa Street	Between new South Gate and I-410	2,800	550	B	600	B	600	B	600	B
South Presa Street	South of I-410	2,800	450	B	500	B	500	B	500	B
Goliad Road	North of S.E. Military Drive	5,600	950	B	1,000	B	1,000	B	1,000	B
Goliad Road	Between S.E. Military Drive and I-410	2,800	600	B	600	B	650	B	650	B
New Braunfels Avenue	North of S.E. Military Drive	2,800	950	C	1,000	C	1,050	C	1,050	C
New Braunfels Avenue	North of Pecan Valley Drive	2,800	1,150	C	1,200	C	1,250	D	1,250	D
Pecan Valley Drive	East of New Braunfels Avenue	5,600	400	A	450	A	450	A	450	A
Pecan Valley Drive	South of Goliad Road	5,600	1,250	A	1,300	A	1,350	A	1,350	A
Henderson Court	Between West Gate and South Presa Street	5,600	250	A	250	A	250	A	300	A

I = Interstate  
 LOS = level of service  
 PHV = peak-hour volume

each period of analysis (2005, 2010, 2020). On-base utility demands were estimated by applying use rates to appropriate units of land uses (e.g., employees, residents, square footage).

#### **4.2.4.1 Proposed Action.**

The following sections summarize the projected utility demand at 5, 10, and 20 years after implementation of the Proposed Action. SAWS is expected to construct a recycled water distribution system on the base. This system is anticipated to be fully operational by fall 2001, and it is anticipated that on-base potable water consumption could be reduced by up to 0.25 MGD for all scenarios. Projected ROI utility demands in 2020 would be greater than baseline (1998) demands for all utilities. This increase is associated with regional growth (No-Action Alternative).

##### **4.2.4.1.1 Scenario A.**

Under Scenario A, projected increases in utility consumption resulting from implementation of the BCBP and from localized increases in utility consumption are summarized in Table 4.2-5. In 2020, project-related utility use would represent less than 2 percent of ROI consumption. Utility systems in the region would continue to operate within capacity and no significant impacts are anticipated.

##### **4.2.4.1.2 Scenario B.**

Under Scenario B, projected increases in utility consumption resulting from implementation of the BCBP and from localized increases in utility consumption are summarized in Table 4.2-5. In 2020, project-related utility use would represent less than 2 percent of ROI consumption. Utility systems in the region would continue to operate within capacity and no significant impacts are anticipated.

##### **4.2.4.1.3 Scenario C.**

Under Scenario C, projected increases in utility consumption resulting from implementation of the BCBP and from localized increases in utility consumption are summarized in Table 4.2-5. In 2020, project-related utility use would represent less than 2 percent of ROI consumption. Utility systems in the region would continue to operate within capacity and no significant impacts are anticipated.

**Mitigation Measures.** Because there are no adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** Because the Proposed action represents only a very small percentage of the total regional projected growth, cumulative impacts are not expected.

**Table 4.2-5. Projected Utility Consumption in the ROI**

	Brooks AFB 2005	Percent of ROI Consumption Associated with City Base <sup>(a)</sup>	Brooks AFB 2010	Percent of ROI Consumption Associated with City Base <sup>(a)</sup>	Brooks AFB 2020	Percent of ROI Consumption Associated with City Base <sup>(a)</sup>
<b>Water (MGD)<sup>(b)</sup></b>						
No-Action	0.21	0.11	0.21	0.10	0.21	0.08
Scenario A	0.30	0.16	0.54	0.27	1.15	0.46
Scenario B	0.28	0.15	0.45	0.22	0.90	0.36
Scenario C	0.33	0.18	0.62	0.31	1.39	0.56
<b>Wastewater (MGD)</b>						
No-Action	0.24	0.16	0.24	0.14	0.24	0.12
Scenario A	0.32	0.21	0.53	0.32	1.07	0.52
Scenario B	0.24	0.16	0.42	0.25	0.88	0.43
Scenario C	0.34	0.22	0.60	0.36	1.26	0.61
<b>Electrical (MkWH per day)</b>						
No-Action	0.17	0.36	0.17	0.32	0.17	0.26
Scenario A	0.22	0.46	0.36	0.68	0.71	1.10
Scenario B	0.21	0.44	0.30	0.57	0.53	0.82
Scenario C	0.23	0.48	0.38	0.72	0.78	1.21
<b>Natural Gas (MCF per day)</b>						
No-Action	0.28	0.34	0.28	0.31	0.28	0.25
Scenario A	0.45	0.55	0.88	0.97	1.99	1.79
Scenario B	0.40	0.49	0.70	0.77	1.48	1.33
Scenario C	0.47	0.57	0.94	1.03	2.17	1.96

Notes: (a) Assumes regional utility consumption growth at a rate of 2 percent annually.

(b) Includes potable water reductions projected to occur from operation of the San Antonio Water System's recycled water distribution system.

AFB = Air Force Base

MCF = million cubic feet

MGD = million gallons per day

MkWH = million kilowatt hours

ROI = region of influence

#### **4.2.4.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts would be the same as those described for the Proposed Action for Scenarios A, B, and C.

**Mitigation Measures.** Because there are no adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** Because the Outgrant Alternative represents only a very small percentage of the total regional projected growth, cumulative impacts are not expected.

#### **4.2.4.3 No-Action Alternative.**

Table 4.2-5 summarizes the projected utility demand at Brooks AFB under the No-Action Alternative for the 20-year analysis period. Projected ROI utility demands in 2020 would be greater than baseline (1998) demands for all utilities. However, local utility conveyors have taken this growth into consideration and all systems would continue to operate within capacity. No impacts are anticipated.

The figures shown for the No-Action Alternative generally incorporate the changes expected in utility usage at Brooks AFB without implementation of the Proposed Action or alternatives.

**Mitigation Measures.** Because there are no adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** No impacts have been identified; therefore, no cumulative impacts are expected.

### **4.3 HAZARDOUS MATERIALS MANAGEMENT**

This section addresses the potential for environmental impacts from hazardous materials management practices associated with the Proposed Action, the Outgrant Alternative, and the No-Action Alternative. Hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance are discussed within this section. It has not yet been determined who will be responsible for management of and permitting requirements for hazardous materials once the property is transferred from Air Force control or leased to private entities. To reflect this uncertainty, discussions of responsibility for hazardous materials management in this section refer to the property recipient and/or property user. Details regarding these responsibilities would be determined during property transaction negotiations and would be outlined in deed/lease documentation. Applicable federal, state, and local regulations and guidelines regarding hazardous materials management would be followed by the responsible party, whether it be the property recipient or user. In some cases, the responsible party could include the Air Force.

#### **4.3.1 Proposed Action**

##### **4.3.1.1 Scenario A**

**Hazardous Materials Management.** Based on the proposed land uses and because proposed development would be consistent with current Brooks AFB operations, the types of hazardous materials likely to be utilized for activities under Scenario A would be similar to those used under baseline conditions. The quantity of hazardous materials used under the Proposed Action could increase over baseline condition quantities as a result of development associated with implementation of the BCBP. Hazardous materials usage would primarily be increased by development of the light industrial area, which could include light manufacturing activities or laboratories. Hazardous materials utilized could include aerosols, corrosives, heating oil, heavy metals, ignitables, pesticides,

solvents, paints and thinners, and household cleaning products. The specific chemical compositions and exact use rates associated with Scenario A are not known. If an increase in hazardous materials usage occurs, an implementation plan and a Toxic Release Inventory may need to be prepared by the property user.

Under Scenario A, each property recipient and/or user would be responsible for the management of hazardous materials according to applicable regulations. Property recipients and/or users would be required to comply with EPCRA, which requires that local communities be informed of the use of hazardous materials. Hazardous materials management in the workplace would be regulated under OSHA (29 CFR Part 1910.1200). Because management of hazardous materials by property recipients and/or users would be conducted in accordance with applicable regulations, no impacts are anticipated under the Proposed Action.

**Storage Tanks.** USTs may be required to support activities under Scenario A. New and existing USTs utilized by the property recipients and/or users would be subject to applicable federal, state, and local regulations. These regulations include providing acceptable leak detection methodologies, spill and overflow protection, cathodic protection, secondary containment for the tank systems (including the piping), and liability insurance. Existing USTs that would not be required to support activities under Scenario A would be transferred to the property recipient and/or user.

ASTs and OWSs required to support activities on transferred property would also be managed in accordance with applicable regulations. ASTs and OWSs not required to support proposed activities would be transferred to the property recipient and/or user. Proper management of USTs, ASTs, and OWSs by property recipients and/or users in accordance with applicable regulations would minimize the potential for impacts.

**Pesticide Usage.** Pesticides associated with Scenario A would be similar in type to those currently utilized. Quantities of pesticides utilized could increase slightly due to an increase in developed/landscaped areas. Pesticide management practices on transferred property would be subject to FIFRA and state guidelines. Appropriate management practices by the property recipient and/or user would preclude impacts; therefore, no impacts from pesticide usage are anticipated.

**Radioactive Materials.** Under Scenario A, radioactive materials usage could increase over baseline conditions. Radioactive materials would primarily be associated with the research and development land use, which comprises the largest acreage under all BCBP scenarios. Types of radioactive materials and waste would be similar to those used/generated by the Air Force under baseline conditions. Under Scenario A, the property recipient and/or user would be responsible for obtaining appropriate permits and licenses for the use and disposal of radioactive materials in accordance with applicable regulations. Management of radioactive materials by the property recipient and/or user in accordance with applicable regulations would minimize the potential for impacts.

**Ordnance.** Storage and use of ordnance would be similar to that of baseline conditions. Based on the proposed land uses, it is unlikely that additional ordnance would be stored or utilized on transferred property. Security personnel would store and use small quantities of ordnance on property that would be transferred and leased back.

Four former skeet ranges and two former small firearms ranges have been identified as an AOC. These areas will be investigated and remediated, if necessary, under the IRP. Impacts associated with the investigation of, and potential contamination from, the former skeet and small firearms ranges are discussed in Section 4.4.2, Hazardous Waste Management.

#### **4.3.1.2 Scenario B.**

Impacts for hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance would be similar to those described under Scenario A.

#### **4.3.1.3 Scenario C.**

Impacts for hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance would be similar to those described under Scenario A.

**Mitigation Measures.** Because all property recipients and/or users would be required to comply with applicable federal, state, and local regulations regarding the use, storage, and handling of hazardous substances, activities under the Proposed Action would not result in substantial environmental impacts; no mitigation measures would be required.

Although mitigation measures are not required, the following measures are suggested to further reduce the potential for release of hazardous materials into the environment. A cooperative planning body for hazardous materials and waste management could be established with the support of the new property recipients on transferred property at Brooks AFB. Establishment of such a body could reduce the costs of environmental compliance training, health and safety training, and waste management, and could increase recycling, minimize waste, and assist in mutual aid spill responses. Implementation of such a planning body would be the responsibility of all property recipients.

**Cumulative Impacts.** No hazardous materials management impacts have been identified; therefore, no cumulative impacts are anticipated.

### **4.3.2 Outgrant Alternative**

#### **4.3.2.1 Scenario A.**

Under the Outgrant Alternative, impacts would be similar to those described for the Proposed Action for hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance. The differences in

anticipated impacts with implementation of the Outgrant Alternative for hazardous materials management are discussed below.

**Hazardous Materials Management.** As discussed in Section 3.3, in accordance with 10 U.S.C. 2692, Storage, Treatment, and Disposal of Nondefense Toxic and Hazardous Materials, only DOD or a military member assigned to MFH may store, treat, or dispose of toxic or hazardous materials on DOD installations, unless a statutory exception applies to a non-DOD entity's activities. Therefore, in order to store hazardous materials on outgranted property, a property user would require a statutory exception from the Secretary of the Air Force.

If exceptions are obtained by property users, the types of hazardous materials to be utilized for activities under the Outgrant Alternative are expected to be similar to those used under baseline conditions. The quantity of hazardous materials used under the Outgrant Alternative could increase over baseline conditions.

#### **4.3.2.2 Scenario B.**

Impacts for hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance would be similar to those described under the Proposed Action and the Outgrant Alternative, Scenario A.

#### **4.3.2.3 Scenario C.**

Impacts for hazardous materials management, storage tanks, pesticide usage, radioactive materials, and ordnance would be similar to those described under the Proposed Action and the Outgrant Alternative, Scenario A.

**Mitigation Measures.** Because no impacts have been identified, mitigation measures are not required. Measures to minimize the potential for impacts would be the same as described under the Proposed Action.

**Cumulative Impacts.** No hazardous materials management impacts have been identified; therefore, no cumulative impacts are anticipated.

#### **4.3.3 No-Action Alternative**

**Hazardous Materials Management.** Under the No-Action Alternative, transfer or outgrant of property would not occur. The Air Force would continue to use types and quantities of hazardous materials similar to those of baseline conditions. The Air Force would continue to manage hazardous materials in accordance with applicable regulations to minimize the potential for impacts. No impacts are anticipated under the No-Action Alternative.

**Storage Tanks.** Under the No-Action Alternative, storage tank management would continue to be the responsibility of the Air Force. Management of storage tank systems in accordance with applicable regulations would minimize the potential for impacts. No impacts are anticipated under the No-Action Alternative.

**Pesticide Usage.** Under the No-Action Alternative, quantities of pesticides utilized would be similar to those utilized under baseline conditions. The Air Force would continue to be responsible for management and application of pesticides. Application of pesticides would be conducted in accordance with FIFRA and state regulations to assume the proper, safe handling and application of all chemicals; therefore, no impacts are anticipated under the No-Action Alternative.

**Radioactive Materials.** Under the No-Action Alternative, quantities and types of radioactive materials and waste would be similar to that utilized/generated under baseline conditions. The Air Force would continue to be responsible for management of radioactive materials and waste. No impacts are anticipated under the No-Action Alternative.

**Ordinance.** Ordnance storage and use under the No-Action Alternative would be similar to that of baseline conditions. Investigation of the AOC associated with the former skeet and small firearms ranges would continue under the IRP; impacts to the IRP as a result of the No-Action Alternative are discussed further in Section 4.4.2, Hazardous Waste Management. No impacts are anticipated under the No-Action Alternative.

**Mitigation Measures.** Because there are no adverse impacts anticipated under the No-Action Alternative, mitigation measures are not required.

**Cumulative Impacts.** No hazardous materials management impacts have been identified; therefore, no cumulative impacts are anticipated.

## **4.4 SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT**

### **4.4.1 Solid Waste Management**

The following section discusses potential impacts to solid waste management within the ROI from implementation of the Proposed Action and alternatives.

By 2020, approximately 11,750 tons of solid waste are projected to be generated per day in the ROI. Assuming the Texas SWDA goal of 40 percent recycling is met, approximately 7,000 tons of solid waste would be disposed of in landfills each day. If the recycling goal is met, less solid waste would be disposed of in landfills in 2020 than under baseline conditions.

#### **4.4.1.1 Proposed Action**

##### **4.4.1.1.1 Scenario A.**

Table 4.4-1 summarizes the projected solid waste generation and disposal quantities in 2020 for Scenario A. Solid waste generation at Brooks AFB would increase under Scenario A; however, these quantities would only be a small percentage of the total projected solid waste generation within the ROI, and are within the ROI's landfill capacity. No significant impacts are expected.



**Table 4.4-1. Projected Daily Solid Waste Generation and Disposal (in tons)**

	Brooks AFB 2005 (tons/day)	Percent of ROI Consumption Occurring on Brooks AFB <sup>(a)</sup>	Brooks AFB 2010 (tons/day)	Percent of ROI Consumption Occurring on Brooks AFB <sup>(a)</sup>	Brooks AFB 2020 (tons/day)	Percent of ROI Consumption Occurring on Brooks AFB <sup>(a)</sup>
<b>Solid Waste Generation</b>						
No-Action	4.40	0.05	4.40	0.05	4.40	0.04
Scenario A	10.70	0.12	18.36	0.19	38.00	0.32
Scenario B	10.00	0.11	15.00	0.16	29.55	0.25
Scenario C	11.00	0.13	20.00	0.21	43.50	0.37
<b>Solid Waste Disposal to Landfill<sup>(b)</sup></b>						
No-Action	3.10	0.04	2.60	0.04	2.60	0.04
Scenario A	6.40	0.08	11.00	0.15	22.80	0.33
Scenario B	6.00	0.08	9.00	0.13	17.73	0.26
Scenario C	6.60	0.08	12.00	0.17	26.12	0.38

Notes: (a) Assumes a growth rate of 2 percent annually in the ROI.

(b) Assumes 40 percent of solid waste within the ROI is recycled by 2005.

AFB = Air Force Base

ROI = region of influence

Demolition of up to 250,000 square feet of facility space would result in approximately 13,000 tons of debris (1,675 tons of wood, 360 tons of sheetrock, 10,625 tons of concrete, and 340 tons of miscellaneous materials) that would require disposal. Buildings with potential to contain asbestos and/or lead-based paint would be sampled prior to demolition activities to ensure proper disposal and abatement of these materials. The construction contractor would be required to dispose of all construction debris in accordance with federal, state, and local regulations. Debris would be disposed of at landfills within the ROI. The quantity of disposal debris generated would be within the ROI's landfill capacity, and no significant impacts are expected.

#### **4.4.1.1.2 Scenario B.**

Impacts under Scenario B would be similar to those described under Scenario A (see Table 4.4-1). However, demolition of up to 83,600 square feet of existing facility space would result in approximately 4,300 tons of debris (560 tons of wood, 120 tons of sheetrock, 3,550 tons of concrete, and 70 tons of miscellaneous materials). This quantity would be less than would result from implementation of Scenario A. The amount of demolition debris to be disposed of would be within the ROI's landfill capacity, and no significant impacts are expected.

#### **4.4.1.1.3 Scenario C.**

Impacts under Scenario C would be similar to those described under Scenarios A and B (see Table 4.4-1). However, demolition of up to 287,600 square feet of

existing facility space would result in approximately 14,870 tons of debris (1,900 tons of wood, 400 tons of sheetrock, 12,200 tons of concrete, and 370 tons of miscellaneous materials). This quantity would be more than would result from implementation of Scenarios A or B. The amount of demolition debris to be disposed of would be within the ROI's landfill capacity, and no significant impacts are expected.

**Mitigation Measures.** Because there are no adverse impacts under the Proposed Action, mitigation measures are not required.

**Cumulative Impacts.** No solid waste impacts have been identified for the Proposed Action. Quantities of solid waste generated would represent only a very small percentage of total regional solid waste generation; therefore, no cumulative impacts are expected.

#### **4.4.1.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts to solid waste management would be similar to those described for the Proposed Action.

**Mitigation Measures.** Because there are no adverse impacts under the Outgrant Alternative, mitigation measures are not required.

**Cumulative Impacts.** No solid waste impacts have been identified for the Outgrant Alternative. Therefore, implementation of the proposed activities would not contribute to cumulative impacts when considered in conjunction with other proposed projects in the region.

#### **4.4.1.3 No-Action Alternative.**

Under the No-Action Alternative, solid waste generation at Brooks AFB would remain relatively constant, with some reduction anticipated as a result of recycling and source-reduction efforts. No significant impacts are expected.

**Mitigation Measures.** Because there are no adverse impacts under the No-Action Alternative, mitigation measures are not required.

**Cumulative Impacts.** No solid waste impacts have been identified for the No-Action Alternative. Therefore, no cumulative impacts are expected.

### **4.4.2 Hazardous Waste Management**

This section addresses the potential for environmental impacts caused by hazardous waste management practices associated with the Proposed Action, the Outgrant Alternative, and the No-Action Alternative. Hazardous waste management, IRP sites, asbestos, medical/biohazardous waste, and lead-based paint are discussed within this section. It has not yet been determined who will be responsible for management of and permitting for hazardous waste once the property is transferred from Air Force control or leased to private entities. To reflect this uncertainty, discussions of hazardous waste management

responsibilities in this section refer to the property recipient and/or property user. Details regarding these responsibilities would be determined during property transaction negotiations and would be outlined in deed/lease documentation. Applicable federal, state, and local regulations and guidelines regarding hazardous waste management would be followed by the responsible party, whether it be the property recipient or user. In some cases, the responsible party could include the Air Force.

#### **4.4.2.1 Proposed Action**

##### **4.4.2.1.1 Scenario A**

**Hazardous Waste Management.** Under Scenario A, hazardous waste would be generated from the use of hazardous materials and the processes that utilize these materials. The types of hazardous waste likely to be generated would be similar to those generated under baseline conditions. The quantity of hazardous waste generated could increase over baseline conditions as a result of development associated with implementation of the BCBP. Hazardous waste generation would primarily be increased by development of the light industrial area, which could include light manufacturing activities or laboratories.

Upon transfer of the property, each property recipient and/or user would be responsible for management of hazardous waste according to applicable regulations. The property recipients and/or users would be responsible for obtaining the appropriate permits for the storage, treatment, or disposal of any waste generated on transferred property. The presence of numerous operators could change the regulatory requirements and could increase the regulatory burden relative to hazardous waste management. Once the responsibilities of hazardous waste management are allocated to individual organizations, proficiency with those materials and spill responses is required by federal, state, and local regulations. Because management of hazardous waste would be conducted in accordance with applicable regulations by the property recipients and/or users, no impacts are anticipated.

As stated earlier in this section, some details of hazardous materials management have not yet been determined. If the Proposed Action were implemented, installation roads would no longer be under federal control and requirements for transporting hazardous waste may differ from baseline conditions. It is not yet known how transportation of hazardous waste from building to building within the base would be regulated under the Proposed Action. In addition, it is not known whether the Central Accumulation Facility would continue to operate if the BCBP were implemented and the property transferred from Air Force control. These issues would be resolved during property transaction negotiations; permitting and management responsibilities would be designated in the deed documents. AFIERA is expected to continue to sample and dispose of suspected PCB-containing items from DOD clients in accordance with TSCA regulations. Applicable local, state, and federal regulations regarding transportation of hazardous waste would be followed by the property recipient and/or property user, and no impacts are anticipated.

**Installation Restoration Program Sites.** The Air Force is responsible for remediation of all IRP sites on Brooks AFB and is committed to continue IRP activities to completion. For transferred properties, the Air Force may require easements, permits, or licenses to monitor and manage remediation activities to completion. The type of development that is appropriate to property adjacent to or over an IRP site may be limited by the risk to human health and the environment posed by contaminants at the site. In general, most potential development associated with the BCBP has been sited in areas unaffected by contamination. Most IRP sites with continuing land use constraints (i.e., closed landfills) are located within the Public/Open Space land use and are not anticipated to affect or to be affected by future development plans.

Table 4.4-2 list all the IRP sites and AOCs, the type of development that is appropriate on each site, and the land uses that are proposed for property associated with each IRP site/AOC under Scenarios A, B, and C. Figure 4.4-1 presents the locations of the IRP sites and AOCs overlaid with the land uses proposed under Scenario A. Potential impacts under Scenario A are briefly discussed below.

As shown in Table 4.4-2, land uses proposed under Scenario A are generally compatible with the type of development permitted upon property associated with IRP sites. Delays in property transfer may result at sites that are not yet closed (FT002, LF007, and the AOC Former Skeet Ranges and Small Firearms Ranges), and deed restrictions may be required for property associated with these sites. Ongoing actions at open sites may result in land use restrictions and a delay in transfer of property. The Air Force may require easements, permits, or licenses to monitor and manage remediation activities to completion.

Restrictions for the AOC would depend on the results of future investigations and the level of contamination identified at the sites.

Schools, child-care centers, and other similar development are classified as residential-type development. Therefore, construction of schools, child-care centers, and other similar development would only be permitted within areas suitable for residential development under the current closure standards. Site OT001, identified in Table 4.4-2, shows a possible conflict with the TND land use under Scenario A. However, this apparent conflict will be resolved through the use of controls in the transfer agreements, which will prevent residential development on the OT001 property under its current closure status. Under the proposed land use scenario definitions, schools could be developed within the Public/Open Space land use and child-care centers could be developed within the Mixed Use land use. Avoidance of this type of development on property that has not been cleaned to RRSs would preclude impacts. Avoidance of incompatible development and the compliance with soil and groundwater restrictions for IRP sites, where necessary, would preclude impacts associated with the IRP.

In accordance with AFI 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*, an environmental baseline survey (EBS) will be prepared for property identified for outgrant or disposal. The EBS findings will be used to

**Table 4.4-2. IRP/AOCs within Land Use Scenarios A, B, and C<sup>(a)</sup>**  
**Page 1 of 2**

IRP Site/AOC	Type of Development Permitted/Restrictions	Proposed Land Use		
		Scenario A	Scenario B	Scenario C
OT001	Nonresidential development	TND	Research and Development Park	TND
FT002	OU 1 – Nonresidential development OU-2 – Residential and nonresidential development; groundwater restrictions	OU 1 – Public/Open Space OU 2 – Public/Open Space, TND, Research and Development Park	OU 1 – Research and Development Park OU 2 – Research and Development Park	OU 1 – Research and Development Park OU 2 – TND, Research and Development Park
LF003	Residential or nonresidential development	Public/Open Space	Public/Open Space	Public/Open Space
LF004	Residential or nonresidential development	Mixed Use, TND	Public/Open Space, TND	Public/Open Space, Mixed Use
LF005	Residential or nonresidential development	Public/Open Space	Public/Open Space	Public/Open Space
LF006	Residential or nonresidential development	Public/Open Space, Mixed Use	Public/Open Space, Multi-Family Residential	Public/Open Space, Multi-Family Residential
LF007	Nonresidential development; soil and groundwater restrictions	Public/Open Space	Public/Open Space	Public/Open Space
LF008	No residential development; any development must be approved by TNRCC	Public/Open Space	Public/Open Space	Public/Open Space
OT009	Residential or nonresidential development	Research and Development Park	Light Industrial	Light Industrial
SS010	Residential or nonresidential development	Research and Development Park	Research and Development Park	Research and Development Park
WP011	Residential or nonresidential development	Public/Open Space, Mixed Use	Public/Open Space, Multi-Family Residential	Public/Open Space, Multi-Family Residential

**Table 4.4-2. IRP/AOCs within Land Use Scenarios A, B, and C<sup>(a)</sup>**

**Page 2 of 2**

IRP Site/AOC	Type of Development Permitted/Restrictions	Proposed Land Use		
		Scenario A	Scenario B	Scenario C
AOC Buildings 696-698	Nonresidential development	Mixed Use	Mixed Use	Mixed Use
AOC Former Skeet Ranges and Small Firearms Ranges	Development restricted until investigation complete	Public/Open Space, TND, Multi-Family Residential	Public/Open Space, TND, Research and Development Park	Public/Open Space, Mixed Use, TND, Multi- Family Residential

Note: (a) Because the investigation of the AOC at the former skeet and small firearms ranges is in the preliminary stages, site boundaries for the ranges were not available. Based upon available information, a general location has been identified for each range for this EIS. As more information becomes available based on the findings of the investigation, the land use areas that the ranges are situated within may change.

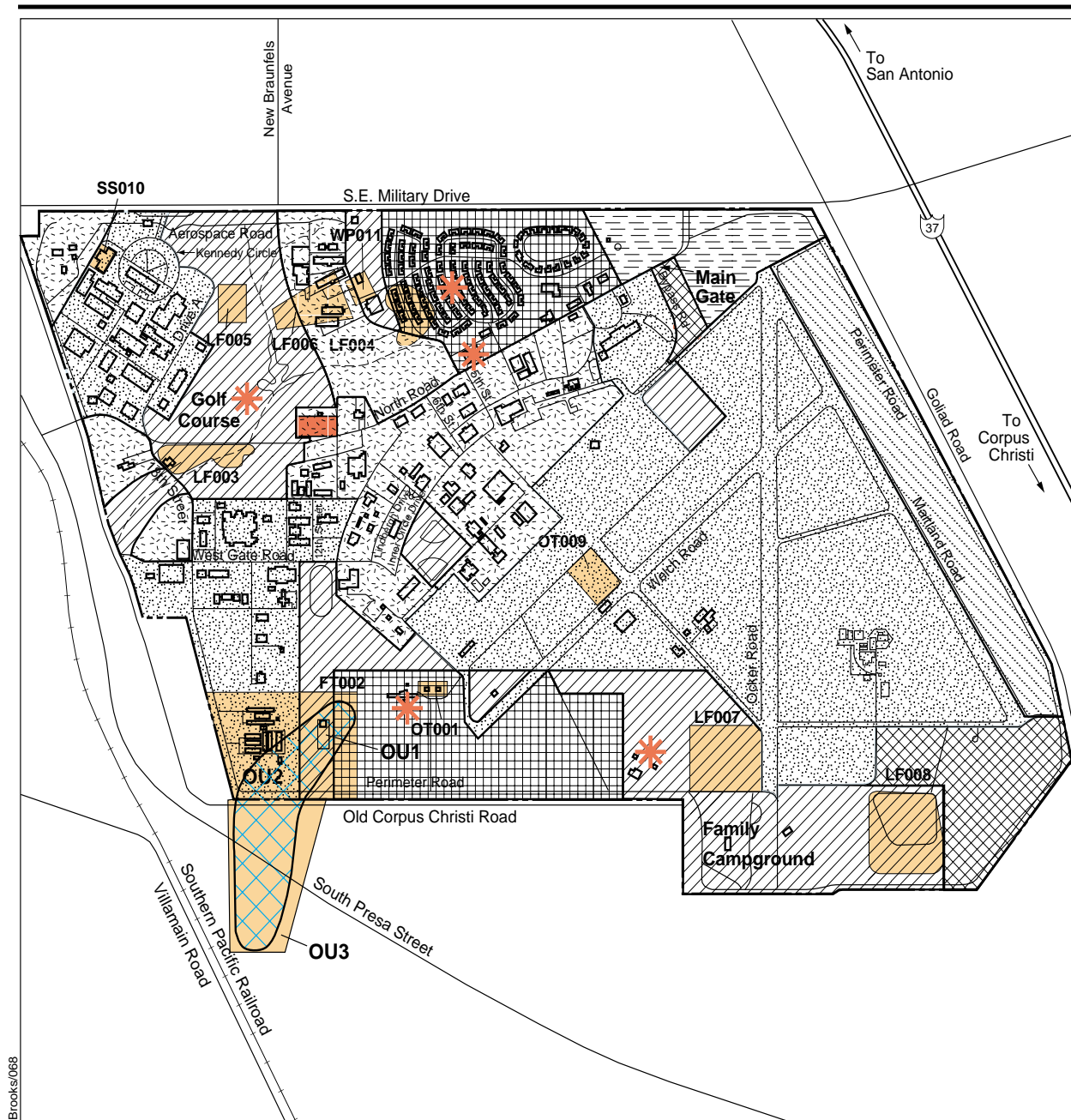
AOC = area of concern

IRP = Installation Restoration Program

OU = operable unit

TND = Traditional Neighborhood Development

TNRCC = Texas Natural Resource Conservation Commission



#### EXPLANATION

- Brooks Air Force Base Boundary
- 37 Interstate Highway
- IRP Site
- AOC Buildings 696-698
- Approximate Location of AOC Associated with Former Skeet and Small Arms Firing Ranges

- TCE Plume
- Public/Open Space
- Mixed Use
- Light Industrial
- Research and Development Park
- Retail/Commercial
- Traditional Neighborhood Development
- Multi-Family Residential



#### IRP Sites/AOCs - Scenario A

Figure 4.4-1

determine the suitability of Brooks AFB property for transfer. As part of this determination, the Air Force, in cooperation with the U.S. EPA and the TNRCC, would categorize parcels of property at Brooks AFB based on the level and type of contamination present. Depending on the type of transfer that occurs, institutional controls may be applied that may constrain future use of certain parcels. Recipients and/or users of parcels of property where the closed IRP sites are present would be responsible for enforcement of these institutional controls. Development activities would not adversely impede the successful implementation of the IRP; therefore, no significant impacts are anticipated.

Although there are no impacts and mitigation measures are not required, the following measures are provided as a way of implementing development activities on property associated with IRP sites. While all IRP sites may not need to be remediated, all must be addressed and properly closed out. A proactive land use planning approach to development would require coordination and enforcement among the Air Force and CoSA in order to reduce potential delays in property development. Land use constraints from IRP sites could be mitigated by implementing a phased construction schedule. Development could begin in areas associated with closed IRP sites or property associated with no IRP sites. Areas with active IRP sites could be developed in a later phase, which would allow for IRP site remediation with minimal constraints on development.

Active coordination between the Air Force and CoSA could identify the presence of IRP sites that could limit certain land uses (e.g., landfills). Determination of future land use would be, to a certain extent, dependent on the level of remediation conducted at individual IRP sites. Areas of restricted land use associated with IRP sites could be incorporated into the development plans as greenbelts, parks, or landscaped open spaces.

**Asbestos.** Property recipients would be responsible for management of ACM in accordance with applicable regulations in buildings that are transferred from the Air Force. Renovation and demolition of existing structures with ACM could occur with development activities. These activities would be subject to applicable federal, state, and local regulations to minimize the potential risk to human health and the environment. Demolition debris that contains ACM would be disposed of in a landfill permitted to accept this type of material. The amount of demolition proposed and potential for ACM impacts under Scenario A is higher than that of Scenario B and less than that of Scenario C. Additionally, property recipients and/or users would be advised, to the extent known, of the type, condition, and amount of ACM within transferred real property. No impacts are anticipated as a result of implementation of Scenario A.

**Medical/Biohazardous Waste.** Generation of medical/biohazardous waste by property recipients and/or users would be subject to state regulations under 25 TAC 325 and applicable regulations. No impacts are anticipated as a result of implementation of Scenario A.

**Lead-Based Paint.** Under Scenario A, the occupation and potential renovation or demolition of existing structures that contain lead-based paint would occur. Any lead-based paint waste would be disposed of in a landfill permitted to accept



this type of material. The amount of demolition proposed and potential for lead-based paint impacts under Scenario A is higher than that of Scenario B and less than that of Scenario C. Property recipients and/or users would be provided results of lead-based paint surveys, if applicable, or notified of the potential presence of lead-based paint in facilities constructed before or during 1978, prior to transfer of the property. For buildings that are transferred from Air Force control, the property recipient and/or user would be responsible for management of lead-based paint in accordance with applicable regulations. No impacts are anticipated as a result of implementation of Scenario A.

Coordination of lead-based paint removal in conjunction with renovation or demolition activities could further minimize the risk to human health and the environment. Lead-based paint would be abated, as necessary, in accordance with the Residential Lead-Based Paint Hazard Reduction Act. Compliance with applicable federal, state, and local regulations would minimize potential risks to human health and the environment during abatement of lead-based paint. Any lead-based paint removal activities conducted by the Air Force on structures that are transferred and leased back would be conducted in accordance with Air Force policy and the Residential Lead-Based Paint Hazard Reduction Act.

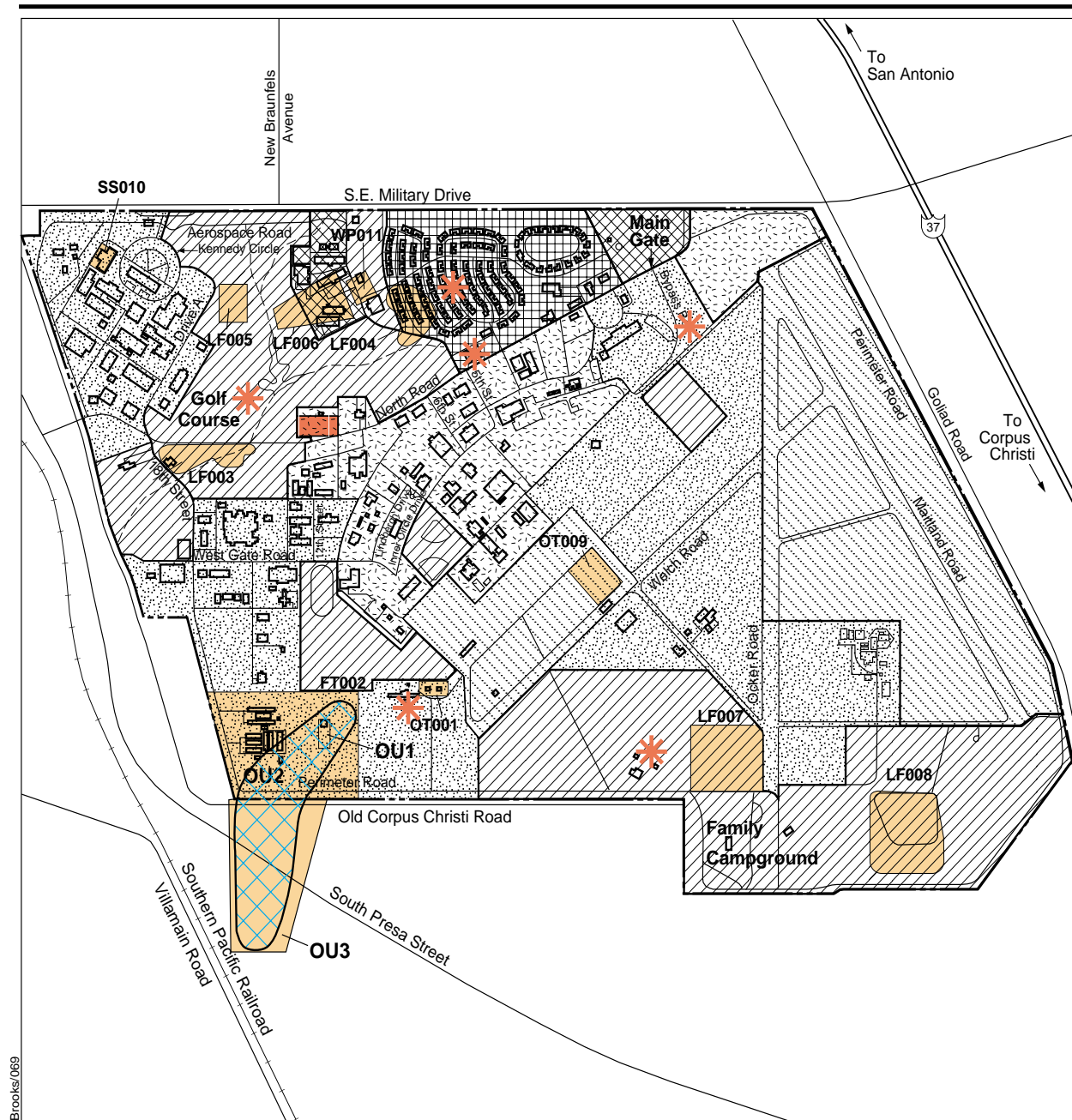
#### **4.4.2.1.2 Scenario B.**

Impacts for hazardous waste management, asbestos, medical/biohazardous waste, and lead-based paint would be similar to those described under Scenario A. The discussion of IRP sites for Scenario B varies from Scenario A and is provided below.

**Installation Restoration Program.** The IRP sites within each proposed land use area vary between Scenario A and B. The IRP sites within each land use area under Scenario B are listed in Table 4.4-2 and shown on Figure 4.4-2. Impacts associated with the IRP would be similar to those discussed under Scenario A.

**Asbestos.** The discussion of impacts for ACM under Scenario B would be similar to that of Scenario A. However, under Scenario B, the amount of demolition and potential for ACM impacts would be less than under Scenario A or C. All demolition activities would be subject to applicable ACM regulations to minimize potential risk to human health and the environment. Therefore, no impacts for ACM are anticipated as a result of implementation of the BCBP under Scenario B.

**Lead-Based Paint.** The discussion of impacts for lead-based paint under Scenario B would be similar to that of Scenario A. However, under Scenario B, the amount of demolition and potential for lead-based paint impacts would be less than under Scenario A or C. All demolition activities would be subject to applicable lead-based paint regulations to minimize potential risk to human health and the environment. Therefore, no impacts for lead-based paint are anticipated as a result of implementation of the BCBP under Scenario B.



#### EXPLANATION

--- Brooks Air Force Base Boundary



Interstate Highway



IRP Site



AOC Buildings 696-698



Approximate Location of AOC Associated with Former Skeet and Small Arms Firing Ranges



TCE Plume



Public/Open Space



Mixed Use



Light Industrial



Research and Development Park



Retail/Commercial \*

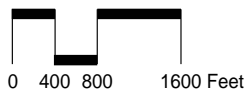


Traditional Neighborhood Development



Multi-Family Residential

#### IRP Sites/AOCs - Scenario B



\* Land use designation not applicable to this figure.

Figure 4.4-2

#### **4.4.2.1.3 Scenario C.**

Impacts for hazardous waste management and medical/biohazardous waste would be similar to those described under Scenario A. The discussion of IRP sites, asbestos, and lead-based paint for Scenario C varies from Scenario A, and is provided below.

**Installation Restoration Program.** The IRP sites within each proposed land use area vary between Scenarios A and C. The IRP sites within each land use area under Scenario C are listed in Table 4.4-2 and shown on Figure 4.4-3. Impacts associated with the IRP would be similar to those discussed under Scenario A.

**Asbestos.** The discussion of impacts for ACM under Scenario C would be similar to that of Scenario A. However, under Scenario C, the amount of demolition and potential for ACM impacts is estimated to be higher than under Scenario A or B. All demolition activities would be subject to applicable ACM regulations to minimize potential risk to human health and the environment. Therefore, no impacts for ACM are anticipated as a result of implementation of the BCBP under Scenario C.

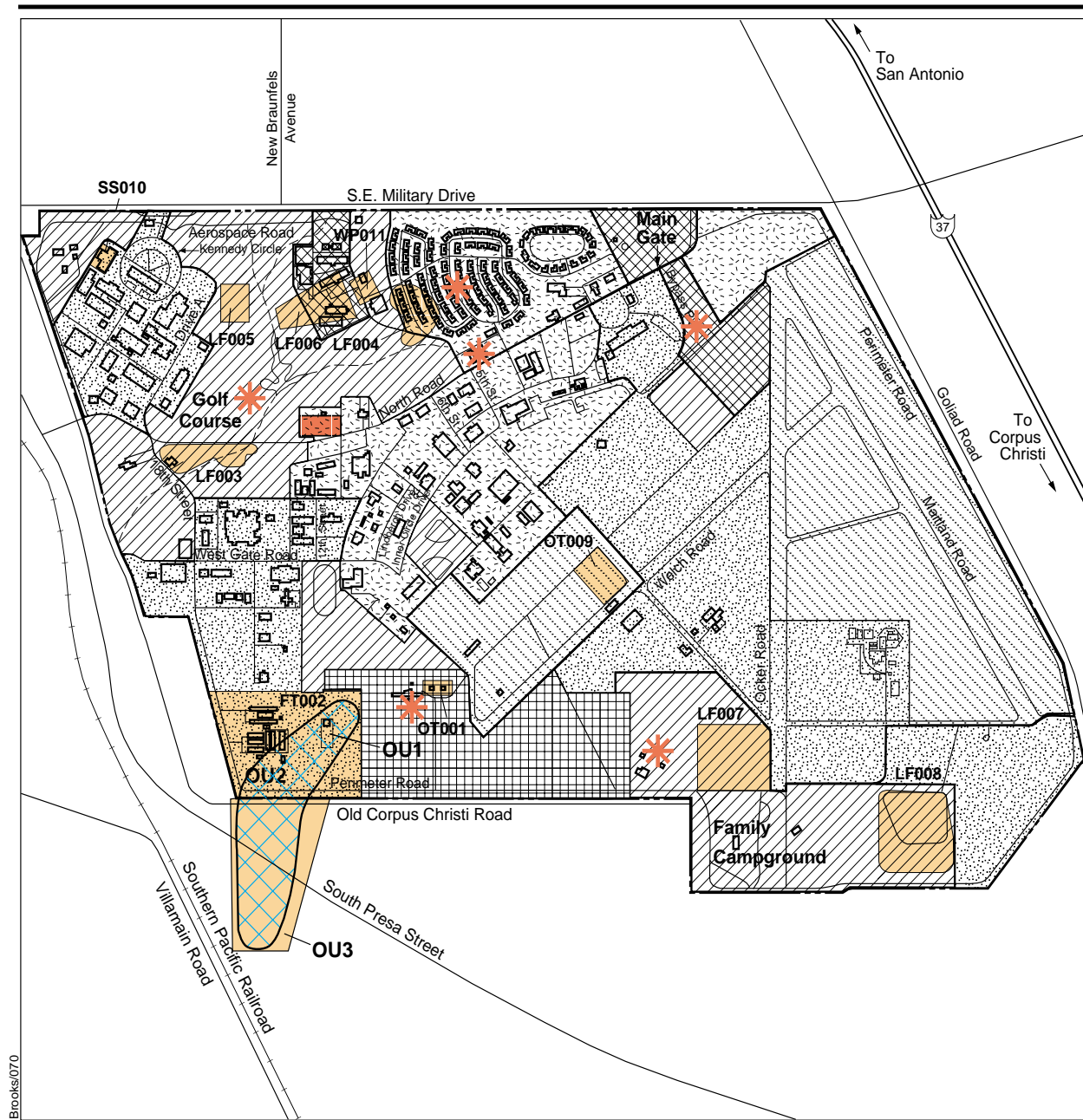
**Lead-Based Paint.** The discussion of impacts for lead-based paint under Scenario C would be similar to that of Scenario A. However, under Scenario C, the amount of demolition and potential for lead-based paint impacts is estimated to be higher than under Scenario A or B. All demolition activities would be subject to applicable lead-based paint regulations to minimize potential risk to human health and the environment. Therefore, no impacts for lead-based paint are anticipated as a result of implementation of the BCBP under Scenario C.

**Mitigation Measures.** Because all property recipients would be required to comply with applicable federal, state, and local regulations regarding the use, storage, and handling of hazardous substances, these activities would not result in substantial environmental impacts, and no mitigation measures would be required.

**Cumulative Impacts.** No hazardous waste management impacts have been identified; therefore, no cumulative impacts are anticipated.

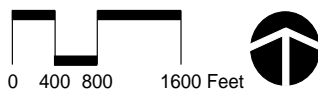
#### **4.4.2.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts would be similar to those described for the Proposed Action for hazardous waste management, IRP sites, asbestos, medical/biohazardous waste, and lead-based paint. The IRP sites within each proposed land use area are the same as for the Proposed Action for Scenarios A, B, and C in Table 4.4-2. The differences in anticipated impacts with implementation of the Outgrant Alternative for hazardous waste management are discussed below.



#### EXPLANATION

- |   |                               |                                      |
|---|-------------------------------|--------------------------------------|
| --- Brooks Air Force Base Boundary  | TCE Plume                     | Retail/Commercial *                  |
| Interstate Highway  | Public/Open Space             | Traditional Neighborhood Development |
| IRP Site  | Mixed Use                     | Multi-Family Residential             |
| AOC Buildings 696-698   | Light Industrial              |                                      |
| Approximate Location of AOC Associated with Former Skeet and Small Arms Firing Ranges | Research and Development Park |                                      |



\* Land use designation not applicable to this figure.

#### IRP Sites/AOCs - Scenario C

Figure 4.4-3

#### **4.4.2.2.1 Scenario A**

**Hazardous Waste Management.** As discussed in Section 3.4.2, only DOD or a military member assigned to MFH may store, treat, or dispose of toxic or hazardous materials on DOD installations, unless a statutory exception applies to a non-DOD entity's activities. Therefore, in order to utilize hazardous materials and generate/store hazardous waste on outgranted property, a property user would need to obtain a statutory exception. If exceptions are obtained by property users, the Air Force plans to require the users to be responsible for obtaining the appropriate permits for the storage, treatment, or disposal of any waste generated on outgranted land. In addition, the property users may be responsible for obtaining their own U.S. EPA hazardous waste identification numbers.

**Mitigation Measures.** No hazardous waste management impacts have been identified; therefore, mitigation measures are not required. Suggested measures to reduce the potential for impact would be the same as described for the Proposed Action.

**Cumulative Impacts.** No hazardous waste management impacts have been identified; therefore, no cumulative impacts are anticipated.

#### **4.4.2.3 No-Action Alternative**

**Hazardous Waste Management.** Under the No-Action Alternative, transfer or outgrant of property would not occur. The Air Force would continue to generate similar types and quantities of hazardous waste as under baseline conditions and would be responsible for management of hazardous waste in accordance with applicable regulations to minimize the potential for impacts.

**Installation Restoration Program Sites.** Under the No-Action Alternative, ongoing remediation activities would be continued by the Air Force as scheduled. There would be no impacts associated with the IRP under this alternative.

**Asbestos.** Under the No-Action Alternative, management of ACM throughout the base would continue to be the responsibility of the Air Force. The Air Force would continue to manage ACM in accordance with its own policy and applicable regulations. Management of ACM in accordance with applicable regulations would preclude any impacts; therefore, no impacts are anticipated under the No-Action Alternative.

**Lead-Based Paint.** Under the No-Action Alternative, management of lead-based paint throughout the installation would be the Air Force's responsibility and would continue as under baseline conditions. The Air Force would continue to manage lead-based paint in accordance with applicable regulations. Appropriate management of lead-based paint in accordance with applicable regulations would preclude any impacts; therefore, no impacts are anticipated under the No-Action Alternative.

**Mitigation Measures.** Because there are no adverse impacts anticipated under the No-Action Alternative, mitigation measures are not required.

**Cumulative Impacts.** No hazardous waste management impacts have been identified; therefore, no cumulative impacts are anticipated.

## 4.5 NATURAL ENVIRONMENT

Potential impacts to either the geologic or soil resources within the ROI are evaluated in this section for the Proposed Action, the Outgrant Alternative, and the No-Action Alternative.

### 4.5.1 Geology and Soils

#### 4.5.1.1 *Proposed Action.*

The evaluation of potential impacts to geology and soils considered the amount of area disturbed and the magnitude of this disturbance; whether it is simple grading or massive earth movements. Other concerns, including impacts to geologic structure or seismicity, mineral resources, or paleontological resources, are also addressed.

Comparing the disturbed areas for the three scenarios on a time-weighted basis (annual acreage disturbed) as a percentage of the entire base area, the values for each of these scenarios are very similar. They all increase from the earliest period to the latest period, starting with values around 1 percent of the total area per year and ending (in the last time period) with values ranging from 3.2 percent to 4.2 percent per year. These are not significant values for land area disturbed. In addition, the magnitude of disturbance is estimated to be minor, regardless of the scenario, because the type of development (as indicated by the land use types) and the present topography would not require substantial earth-moving efforts.

#### 4.5.1.1.1 *Scenario A.*

Under Scenario A, the local geology of the Brooks AFB area is unlikely to be affected. No sedimentation patterns would be significantly altered, and no structural movements or changes in seismicity would result. No paleontological finds have been or are expected to be made on Brooks AFB.

Sand and gravel deposits of economic interest are known to be present, underlying portions of Brooks AFB in the housing area. However, the proposed land uses for the housing areas would not substantially reduce or limit the availability of these materials for local industry.

Effects on regional soils would be minimal and would result primarily from ground disturbance associated with facility construction, renovation, demolition, and infrastructure improvement. These activities could alter soil profiles and local topography through slope erosion and sediment in-fill of drainage systems and ponds.

Each developer disturbing 1 acre or more would be required to obtain an NPDES permit before embarking upon any construction activity. The NPDES permit, together with the required accompanying Storm Water Pollution Prevention Plan (SWPPP), would outline strict limitations designed to protect the quality of the surface water and groundwater and the natural environment through which they flow.

The SWPPP would identify specific areas of existing and potential soil erosion, locations of structural measures for sediment control, and management practices and controls. Use of the management practices and controls would reduce the potential for erosion of disturbed soils.

Under Scenario A, 768 acres would be disturbed during construction activities from 2005 through 2020. Because local soils are susceptible to erosion, short-term impacts could occur during such ground-disturbing activities as the demolition of existing facilities, removal of vegetative cover, or grading. Specific areas of concern are discussed in the following paragraphs and are shown on Figure 3.5-2.

Construction in the north portion of the base would occur on Webb and Lewisville soils, with terrain slopes ranging from 3-10 percent. These soils are classified as having poor, but acceptable, characteristics for building foundations and are underlain by clays and silty clays. Construction activities would take place on moderately to extremely erodible soils. Because of the sloping terrain in this area, some grading and excavation will be necessary for development, which will increase the potential for erosion and consequent sedimentation in-fill of downslope floodplain drainages and ponds by creating adverse slope conditions and exposed subsoil. Runoff and sediment could flow into the existing catchment provided by the Golf Course Pond.

Grading activities on Hilly-Gravelly Land soils may occur in the area of the existing base housing; the susceptibility to erosion is variable. Eroded materials could flow toward drainages leading to both on-base floodplains.

Construction in areas where Lewisville and San Antonio clayey loam soils are present has the potential for erosion, ranging from moderate on slopes to nearly nonexistent in the southeast portion of the base. For development on Houston Black terrace deposits, water erosion can be substantial; however, because of the level terrain, erosion potential is very low.

Impacts to disturbed soils during development would be minimized through best management practices in accordance with the guidelines outlined in the Bexar County Soil Surveys (U.S. Department of Agriculture 1991) and the recommendations provided by the district NRCS. The recommended measures are further discussed below.

- Use of protective covering such as mulch, straw, plastic netting, or combinations of these protective coverings.

- Placement of sandbags for diversion of flows away from the natural drainage slopes, partially graded streets, and graded building pads. Desilting basins/sediment basins placed at the bottom of slopes can reduce the amount of silt entering wetlands or ponds.
- Maintenance of a buffer strip of vegetation around a pond or drainage, where possible, to filter sediments.
- Revegetation of slopes and open areas as soon as practical with seeded, wood-based mulch.
- Limitation of the amount of area disturbed and the length of time slopes and barren ground are exposed.
- Retention of as many trees and shrubs as possible adjacent to exposed ground areas for use as natural windbreaks.

Once disturbed areas have been covered with pavement, buildings, or vegetation, their susceptibility to erosion is significantly reduced. Upon completion of the construction phase, maintaining a vegetative cover is the most effective, long-term erosion control strategy for areas not covered with impervious surfaces. Soils underlying facilities and pavements are not subject to erosion. Additional soil erosion measures could be implemented by the future property users.

Because best management practices required by the NPDES and the SWPPP would be implemented during construction activities, no significant impacts to local geology and soils are anticipated with implementation of Scenario A.

#### **4.5.1.1.2 Scenario B.**

Under Scenario B, impacts would be similar to those described for Scenario A. A total of 647 acres would be disturbed during construction activities, a reduction of 121 acres from Scenario A. As a result, the potential for soil erosion would be lower, and no impacts are expected.

#### **4.5.1.1.3 Scenario C.**

Under Scenario C, impacts would be similar to those described for Scenario A. A total of 843 acres would be disturbed during construction activities, slightly more than under Scenario A. However, with the implementation of best management practices during construction, adverse impacts are not expected.

**Mitigation Measures.** Because there are no adverse impacts expected, mitigation measures are not required.

**Cumulative Impacts.** No impacts to geology and soils have been identified; therefore, no cumulative impacts are anticipated.



#### **4.5.1.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts would be similar to those described for the Proposed Action.

**Mitigation Measures.** Because there are no adverse impacts expected, mitigation measures are not required.

**Cumulative Impacts.** No impacts to geology and soils have been identified; therefore, no cumulative impacts are anticipated.

#### **4.5.1.3 No-Action Alternative.**

Under the No-Action Alternative, no new construction or demolition of existing facilities would occur. Therefore, no impacts to geology and soils are anticipated.

**Mitigation Measures.** Because there are no adverse impacts expected, mitigation measures are not required.

**Cumulative Impacts.** No impacts to geology and soils have been identified; therefore, no cumulative impacts are anticipated.

### **4.5.2 Water Resources**

The following subsections describe the potential impacts to water resources from implementation of the Proposed Action and alternatives.

#### **4.5.2.1 Proposed Action.**

The evaluation of potential impacts to water resources within the ROI considered the density of new construction, roads, and other impervious surfaces after development. Changes in an impervious area can increase the volume of runoff, thus causing greater flood volumes and peak flows, while shortening the times for peak flows to occur after the start of rainfall. Other water resources concerns include changes to the amount of groundwater recharge and impacts to the quality of both surface water and groundwater.

To compare the estimated percentage of impervious area for each scenario, the relative amount of new facility construction was compared to the total amount of area for that land use, while making allowances for multi-story buildings. While the results of such calculations are rough, they show that the increase in impervious area would be a relatively small amount of the total area, on the order of 10 percent. The differences between the values for the three scenarios are much less (around 3 percent). This suggests that the same evaluation would generally apply to all three scenarios, and the effect of the change in impervious areas to the hydrology within the ROI should be negligible.

#### **4.5.2.1.1 Scenario A.**

Under Scenario A, the local water resources of the Brooks AFB area are unlikely to be affected. No impacts to floodplains, groundwater recharge, flow patterns, or water supply are expected, and water quality should not be degraded.

**Surface Water.** Under Scenario A, development would cause an increase in impervious surfaces and storm water runoff to ponds, intermittent streams, and storm drains and drainage systems on Brooks AFB. In addition, drainage patterns could be altered to divert runoff from and around construction sites and completed facilities. However, because the project sites are already moderately developed (paved, built on, and artificially drained), the additional construction is not expected to substantially alter the volume of surface runoff. In addition, the developers of any property within the Brooks AFB boundaries will be required to coordinate with CoSA in designing surface drainage facilities. This will include the use of storm water detention or retention structures, if needed, to control the rate of off-base storm water drainage.

It is possible that runoff from construction areas could contribute excessive contaminant loads to local drainages, either during the construction period or during post-development industrial activities. Of particular concern is that runoff to the San Juan Acequia during more severe storm events could add substantially to the pollution. Accordingly, proposed activities will be subject to NPDES permit requirements for storm water discharge during the construction period and a TPDES permit during industrial operations. Issuance of both a TPDES permit and an NPDES permit is contingent upon the development of an SWPPP by the permittee, who would then be subject to approval by TNRCC. SWPPP requirements under the TPDES permit include an outline of the storm water drainage system for each discharge point, a summary of actual and potential pollutant/storm water contact locations, and a summary of current and future locations of surface water bodies. The SWPPP would also incorporate storm water management controls and preventive maintenance for each building.

Although construction projects on sites of fewer than 1 acre would not be subject to NPDES permit requirements, many of the required measures for sediment and erosion control are typically implemented as part of standard construction best management practices on construction sites. Implementation of these measures would minimize both the erosion and sedimentation from construction activities. Storm water best management practices would include infiltration of runoff on site, flow attenuation by vegetation or natural depressions, outfall velocity dissipation devices, storm water retention structures and artificial wetlands, and storm water detention structures. For many sites, a combination of these controls is appropriate. Additional measures include housekeeping best management practices.

There are two 100-year floodplains and one flood-prone area mapped on the main base. No new development would occur within the delineated floodplains. The floodplains are generally associated with ponds and intermittent streams. These areas have been established and would continue to be used as recreation areas that indirectly cause beneficial impacts because such uses preserve the

floodplains and restrict future development. The property recipient and/or user would be responsible for notifying the community floodplain administrator of development in order to ensure that all construction is in compliance with the community's Flood Hazard Prevention Ordinance/Court Order.

**Groundwater.** Under Scenario A, there is no potential for direct contamination of groundwater because Brooks AFB overlies the saline (nonpotable) region of the Edwards aquifer, which is downgradient of the freshwater supply. It should be noted that the long-term potential for indirect groundwater contamination from general operations of the base and industrial facilities is greater than for the development and construction phases. Minor spills of contaminants onto the ground surface over time may result in contaminants being introduced to surface runoff, which may ultimately be diverted as recharge to the aquifer. However, RCRA regulations for handling hazardous materials make these occurrences much less likely than in the past, and any such resultant contamination of groundwater is considered unlikely.

A portion of the economic activity that is anticipated to occur in the ROI could be absorbed through development of property on Brooks AFB. As such, SAWS has considered the projected water demand in planning for regional growth. Implementation of Scenario A would not result in additional increases in water demand in the ROI. In addition, when the SAWS recycled water system becomes operational at Brooks AFB, potable water consumption on base could be reduced by as much as 50 percent from current quantities, resulting in a beneficial effect on the groundwater supply in the region.

**Water Quality.** Section 402(P) of the CWA requires that storm water discharges to Waters of the United States be controlled through the issuance of permits to limit pollutant loading from non-point sources. There are two different types of permits issued to control non-point sources and manage storm water quality. The first is concerned with storm water runoff from construction sites or similar areas of disturbance. These permits will continue to be administered by the U.S. EPA through July 2003. At that time, the state of Texas will assume the administrative responsibility. Therefore, such permits are referred to as NPDES permits in this EIS. These permits are required for construction activities such as clearing, grading, and excavations that result in the disturbance of 1 acre or more of total land area, including areas that are part of a larger common plan of development or sale (40 CFR Part 122.26[b][14][x]). The second type of storm water management permit is concerned with the runoff originating from industrial facilities that already exist or have been recently completed. The responsibility for issuing and administering these permits is presently being transferred to the TNRCC, who currently issues permits under EPA rules. Once approved, the TNRCC will begin issuing permits under their proposed rules. Therefore, permits for industrial storm water runoff are referred to in this EIS as TPDES permits.

Included in the NPDES permit requirements will be measures for controlling pollutants from construction activities. Specifically, this will include sediment and erosion controls and storm water management measures. Sediment and erosion controls generally address pollutants in storm water generated from the site during the time when construction activities are occurring. Storm water

management measures are generally implemented before and during construction, though they are targeted for, and result in, reductions of pollutants in storm water discharged from the site after the construction phase is completed.

Construction activities that could alter natural drainages would temporarily alter local water flow patterns. Storm water discharge from commercial and industrial areas may contain small amounts of fuels, oils, and other residual contaminants that could degrade surface water resources. In addition, nonpoint source runoff could cause higher sediment loads in drainage systems during construction, when soil erosion potential is at its maximum. Demolition of buildings could potentially increase sediments to the drainage system. However, runoff from construction and demolition activities would be short term and confined to a relatively small area. With implementation of best management practices, effects to water resources would be negligible.

Proposed activities may be subject to NPDES permit requirements for storm water discharge during the construction period and subsequently subject to TPDES permit requirements for continued operation of industrial facilities. TPDES permits generally include requirements for long-term sampling and monitoring of storm water outfalls.

Because best management practices required by the NPDES and the SWPPP would be implemented during construction activities, no significant impacts to local surface water or groundwater resources are anticipated with implementation of Scenario B.

#### **4.5.2.1.2 Scenario B.**

Under Scenario B, impacts would be similar to those described for Scenario A. Less acreage would be disturbed; therefore, the potential for surface water runoff would be lower. No significant impacts are expected.

#### **4.5.2.1.3 Scenario C.**

Under Scenario C, impacts would be similar to those described for Scenario A. However, with the implementation of best management practices during construction, adverse impacts are not expected.

**Mitigation Measures.** Because there are no adverse impacts expected, mitigation measures are not required beyond those that will be required under the TPDES permit.

**Cumulative Impacts.** No impacts to water resources have been identified; therefore, no cumulative impacts are anticipated.

#### **4.5.2.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts would be similar to those described for the Proposed Action. However, because the Air Force would own the discharge points, the Air Force would be the permittee or co-permittee.

**Mitigation Measures.** Because there are no significant adverse impacts expected, mitigation measures are not required.

**Cumulative Impacts.** No impacts to water resources have been identified; therefore, no cumulative impacts are anticipated.

#### **4.5.2.3 No-Action Alternative.**

Under the No-Action Alternative, no new development would occur. Therefore, no impacts to water resources are anticipated.

**Mitigation Measures.** Because there are no adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** No impacts to water resources have been identified; therefore, no cumulative impacts are anticipated.

### **4.5.3 Air Quality**

This section discusses the potential impacts to air quality from the Proposed Action, the Outgrant Alternative, and the No-Action Alternative.

Section 176c of the CAA provides that a federal agency cannot support an activity in any way unless the federal agency determines that the activity will conform to the state implementation plan's purpose of attaining and maintaining the NAAQS. In accordance with this part of the Act, U.S. EPA announced promulgation of its final conformity rule for general federal actions for nonattainment and maintenance areas in the November 30, 1993, Federal Register (40 CFR Part 51). The final rule does not apply to the transfer or outgrant of Brooks AFB because of the attainment status of the region. As such, it is not necessary for the Air Force to prepare a conformity determination for the transfer or outgrant of Brooks AFB.

If the proposed 8-hour ozone standard is upheld, and the area is designated as a non-attainment area, the BCBP would be subject to the General Conformity Rule. Since the maximum annual emissions calculated for the project exceed the U.S. EPA's de minimus values for nonattainment areas, the project would undergo a conformity determination, unless one of the other exceptions listed in the Rule applied. To demonstrate compliance with the conformity regulation, emissions from the project would be compared to the SIP emission budget, when it is developed. The SIP has not yet been developed because of the area's current status as an attainment area.

Due to the uncertain status of the 8-hour ozone standard and the current attainment status of the area, this project is not currently subject to general conformity. However, if and when the area is redesignated as nonattainment, and the project becomes subject to general conformity regulations, the impact of the project will be re-evaluated, as necessary, to demonstrate compliance with general conformity.

#### **4.5.3.1 Proposed Action.**

Construction and operation activities associated with the Proposed Action would result in increased air emissions. Construction-related emissions would consist primarily of fugitive dust and combustion emissions and mobile source emissions. Operational emissions are expected to occur from mobile sources such as base vehicles, customer traffic, and personal commute travel. Operational emissions also relate to sources including storage tanks, generators, and boilers.

Under the Proposed Action, the responsibility for managing small stationary sources shifts from a facility-wide Potential to Emit to various users. Under the CAA and the state of Texas, responsibility for local permits is with the owner/operator of the facility. Any area maintained by the Air Force would continue to be operated and managed by the Air Force.

The methods selected to analyze potential air quality impacts are based on the type of emission source examined (Appendix G). This analysis involved estimating the amount of fugitive dust emitted during grading, excavation, and demolition activities, and the combustion emissions associated with construction equipment and worker vehicles. The analysis for source emissions during the operations phase consisted of calculating emissions from vehicles, point sources, and area sources associated with each alternative. These emissions were then evaluated to determine how they would affect the region's ability to maintain NAAQS and air quality standards for attainment areas. No major sources are expected as part of the development presented in the scenarios described below.

Air quality emissions were calculated through 2020 (year of total employment). Emission factors and methodology obtained from the California Environmental Quality Act (CEQA) Handbook (South Coast Air Quality Management District, 1993) were used to calculate construction, mobile source, and area source emissions. All emissions were calculated using applied EPA AP-42 emission factors. These emission factors are generic and applicable to all areas of the country.

##### **4.5.3.1.1 Scenario A**

**Construction.** Construction activities under Scenario A would generate emissions from heavy equipment usage, construction workers' travel, fugitive dust from ground-disturbing activities, and area emissions associated with architectural coating (considered temporary for this analysis). Construction emissions for the 20-year analysis period are listed in Table 4.5-1. Under Scenario A, average annual PM<sub>10</sub> emissions were estimated to be 56.3 tons per

**Table 4.5-1. Construction Emissions for Criteria Pollutants  
(tons per year)<sup>(a)</sup>**

Scenarios	PM <sub>10</sub> <sup>(b)</sup>	CO	NO <sub>x</sub>	VOC
<b>2001 – 2005</b>				
Scenario A	24.2	10.3	47.6	3.2
Scenario B	20.1	7.2	33.1	2.3
Scenario C	26.8	12.0	55.3	3.8
<b>2006 – 2010</b>				
Scenario A	61.9	25.9	119.0	8.1
Scenario B	51.3	18.0	82.8	5.6
Scenario C	67.8	30.1	138.4	9.4
<b>2011 – 2020</b>				
Scenario A	82.7	33.6	154.7	10.5
Scenario B	68.4	23.4	107.7	7.3
Scenario C	91.0	39.1	179.9	12.2

Notes: (a) SO<sub>2</sub> not included in table; quantity is negligible (less than 0.001 ton per year).

(b) PM<sub>10</sub> emissions include combustion and fugitive emissions.

CO = carbon monoxide

NO<sub>x</sub> = nitrogen oxides

PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter

VOC = volatile organic compound

year during the 20-year analysis period or an average of approximately 0.23 ton per day (Table 4.5-1). The greatest PM<sub>10</sub> emissions, estimated to be 82.7 tons per year, would result during construction activities conducted between 2011 and 2020. Construction emissions include both land disturbance activities, such as grading and other related construction processes, and mobile equipment and mobile sources. These emissions would not hinder maintenance of the NAAQS with the ROI.

These emissions would create elevated, short-term concentrations at receptors close to the construction areas. However, the elevated concentrations would be temporary and would fall off rapidly with distance. Estimated daily average PM<sub>10</sub> emissions would not cause or contribute to an exceedance of the 24-hour NAAQS for PM<sub>10</sub>.

Average annual emissions of VOCs, NO<sub>x</sub>, and CO from demolition/construction equipment for the 20-year construction period were estimated to be 7.3, 107.1, and 23.3 tons per year, respectively. SO<sub>2</sub> emissions would be negligible (less than 0.001 ton per year). These emissions would be temporary and would not be significant.

**Operation.** An emissions summary through 2020 is presented in Table 4.5-2. These emissions would be from both direct and indirect sources associated with development. It is assumed that some facilities would produce HAPs in small quantities. If a service station was included, benzene emissions of approximately 1.7 tons per year could occur. These emissions would not increase the existing HAPs baseline at the base to significant levels. HAPs regulated under Section 112b of the CAAA are not considered significant unless there is the potential to

**Table 4.5-2. Operational Emissions for Criteria Pollutants -  
2020 (tons per year)<sup>(a)</sup>**

Scenario	PM <sub>10</sub> <sup>(b)</sup>	CO	NO <sub>x</sub>	VOC
Scenario A	1.0	5.0	29.0	0.3
Scenario B	0.6	3.0	17.5	0.2
Scenario C	0.9	4.5	26.1	0.2

Notes: (a) SO<sub>2</sub> not included in table; quantity is negligible (less than 0.001 ton per year).  
 (b) PM<sub>10</sub> emissions include combustion and fugitive emissions.  
 CO = carbon monoxide  
 NO<sub>x</sub> = nitrogen oxides  
 PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter  
 VOC = volatile organic compound

emit at least 25 tons per year (combined hazardous pollutants) or 10 tons per year of a single pollutant results from operating the source. All regulated stationary sources would have to comply with local air emissions control equipment requirements and other applicable regulatory requirements.

Direct source emissions would include small stationary sources such as emergency generators, boilers, fuel storage tanks, and mobile source emissions. Indirect sources would include fugitive and area emissions from unregulated sources such as paints, lawnmowers, cleaners, solvents, and chemicals, and smaller stationary sources such as unregulated boilers.

These stationary sources would not be considered major sources by design or operation. Within the Mixed Use area, office park facilities would produce the largest number of mobile source emissions. Emissions from restaurants, a service station, a supermarket, and an auto dealership proposed in this area would likely be negligible and, therefore, exempt from permitting requirements. A screening method was used to estimate operational emissions for energy consumption using pounds-per-acre and land use emission factors.

No regulated major sources, as defined in the CAA under 40 CFR Part 52, Subpart A-52.21, Attainment Area PSD Thresholds, have been included for any of the scenarios. When a source is not defined as a major source, potential to emit from stationary sources must reach or exceed 250 tons per year for PSD requirements to apply. Secondary emissions are not included when determining potential to emit. Under Scenario A, total increases in emissions from stationary sources would be less than 250 tons per year based on engineering and operational design (Table 4.5-2). Therefore, emissions resulting from operations would not be considered significant or require a facility PSD permit. If it is determined that air emissions under the Proposed Action would increase over those projected (see Table 4.5-2), a Title V permit application may be required. Under state of Texas regulations, for smaller sources such as small generators or boilers, local general operating permitting requirements may be applicable to commercial or other federal lessees prior to construction activities.

Under Scenario A, emissions associated with operations (see Table 4.5-2) for NO<sub>x</sub> and CO would increase over baseline conditions by 29.0 and 5.0 tons per year, respectively, by 2020. The potential to emit for all criteria pollutants (CO,



NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs) would be less than the 250-ton-per-year U.S. EPA significance threshold.

**Mobile Sources.** The analysis for mobile source emissions was based on the proposed square footage of new facility space. For the MFH area, mobile emissions were calculated based on the type of dwelling unit. Mobile source emissions are not included in PSD significance thresholds. The largest increase in emissions would result from mobile sources.

Table 4.5-3 provides a comparison of the increase in NO<sub>x</sub>, VOCs, and CO as a result of mobile source emissions. By 2020 under Scenario A, NO<sub>x</sub>, VOC, and CO emissions would increase over current conditions by 0.6 percent, 1.4 percent, and 1.6 percent, respectively. PM<sub>10</sub> emissions (34.8 tons per year) from mobile sources in 2020 would not be significant. SO<sub>2</sub> emissions would be negligible. Implementation of Scenario A would not hinder maintenance of the NAAQS within the ROI.

**Table 4.5-3. Mobile Source Emissions - 2020 (tons per year)<sup>(a)</sup>**

	NO <sub>x</sub>		VOCs		CO	
	Increase over Baseline	Percent	Increase over Baseline	Percent	Increase over Baseline	Percent
Scenario A	204.9	0.6	393.4	1.4	3,765.0	1.6
Scenario B	101.8	0.3	177.3	0.6	1,741.1	0.8
Scenario C	175.1	0.5	294.0	1.1	2,950.0	1.2
Regional Mobile Source Inventory	35,478.0		27,864.1		228,537.5	

Notes: (a) SO<sub>2</sub> not included in table; quantity is negligible (less than 0.001 ton per year). Baseline PM<sub>10</sub> quantity not included in TNRCC inventory.

CO = carbon monoxide

NO<sub>x</sub> = nitrogen oxide

VOC = volatile organic compound

Source: Texas Natural Resource Conservation Commission, 1998

All mobile source emissions were calculated using the CEQA Handbook. The trip length for all land use categories was the default value of 10.7 miles, based on the Institute of Transportation Engineers Trip Generation Manual (1991). The average default speed in the Trip Generation Manual, 35 miles per hour, was assumed over the entire trip length. For each land use category, the average number of daily trips shown in Chapter 2.0 was used in the analysis.

Although PM<sub>10</sub> emissions have been calculated for the mobile sources, they are not compared to baseline data, as these data are not available from TNRCC. Average annual PM<sub>10</sub> emissions (25.5-ton-per-year increase over current conditions) from mobile sources in 2020 would not be significant. Implementation of Scenario A would not hinder maintenance of the NAAQS within the ROI.

#### **4.5.3.1.2 Scenario B**

**Construction.** The emissions associated with construction activities for Scenario B are presented in Table 4.5-1. Under Scenario B, average annual PM<sub>10</sub> emissions were estimated to be 46.6 tons per year, or a daily average of 0.19 ton per day, during the 20-year analysis period. These emissions would cause elevated short-term concentrations at receptors close to the construction areas. However, the elevated concentrations would be temporary and would fall off rapidly with distance. Estimated daily average PM<sub>10</sub> emissions would not exceed the 24-hour NAAQS for PM<sub>10</sub>. Average annual emissions of VOCs, NO<sub>x</sub>, and CO from demolition or construction equipment were estimated to be 5.1, 74.5, and 16.2 tons per year, respectively. SO<sub>2</sub> emissions would be negligible (less than 0.001 ton per year). These emissions would be temporary and would not be significant.

**Operation.** Under Scenario B, total NO<sub>x</sub> and CO emissions for Brooks AFB would increase over baseline conditions by 17.5 and 3.0 tons per year, respectively, by 2020 (see Table 4.5-2). These emissions would not increase the existing HAPs baseline at the installation to major source levels. HAPs regulated under Section 112b of the CAA are not considered to meet major source levels unless there is the potential to emit at least 25 tons per year (combined hazardous pollutants) or 10 tons per year of a single pollutant results from operating the source. All regulated stationary sources would have to comply with local air emissions control equipment requirements and other applicable regulatory requirements.

Emissions of all criteria pollutants (CO, NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs) would be less than the 250-ton-per-year U.S. EPA major source threshold.

**Mobile Sources.** By 2020 under Scenario B, NO<sub>x</sub>, VOC, and CO emissions from Brooks AFB would increase over baseline conditions by 0.3, 0.6, and 0.8 percent, respectively (see Table 4.5-3). PM<sub>10</sub> emissions (15.7 tons per year) from mobile sources in 2020 is not expected to be significant. Implementation of Scenario B would not hinder maintenance of the NAAQS within the ROI.

#### **4.5.3.1.3 Scenario C**

**Construction.** The greatest PM<sub>10</sub> emissions, estimated to be 91.0 tons per year, would result during construction activities associated with Scenario C conducted between 2011 and 2020 (see Table 4.5-1). These emissions would not hinder maintenance of the NAAQS with the ROI. Average annual PM<sub>10</sub> emissions were estimated to be 61.9 tons per year, or a daily average of 0.26 ton per day, during the 20-year analysis period (see Table 4.5-1).

These emissions would cause elevated, short-term concentrations at receptors close to the construction areas. Estimated daily average PM<sub>10</sub> emissions would not exceed the 24-hour NAAQS for PM<sub>10</sub>. The elevated concentrations would be temporary and would fall off rapidly with distance. Average annual emissions of VOCs, NO<sub>x</sub>, and CO from demolition/construction equipment were estimated to be 8.5 tons per year, 124.5 tons per year, and 27.1 tons per year, respectively.

SO<sub>2</sub> emissions would be negligible (less than 0.001 ton per year). Impacts from these emissions would be temporary and insignificant.

**Operation.** The greatest VOCs, NO<sub>x</sub>, and CO emissions are 39.1, 179.9, and 12.2 tons per year for the 2011 through 2020 period. Under Scenario C, NO<sub>x</sub> and CO emissions for Brooks AFB would increase over baseline conditions by 26.1 and 0.2 tons per year, respectively, by 2020 (see Table 4.5-2). These emissions would not increase the existing HAPs baseline at the installation to major source levels. HAPs regulated under Section 112b of the CAA are not considered significant unless there is the potential to emit at least 25 tons per year (combined hazardous pollutants) or 10 tons per year of a single pollutant results from operating the source. All regulated stationary sources would have to comply with local air emissions control equipment requirements and other applicable regulatory requirements.

Emissions of all criteria pollutants (CO, NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs) would be less than the 250-ton-per-year U.S. EPA significance threshold.

**Mobile Sources.** By 2020 under Scenario C, NO<sub>x</sub>, VOC, and CO emissions would increase by 0.5, 1.1, and 1.2 percent, respectively (see Table 4.5-3). PM<sub>10</sub> emissions (26.1 tons per year) from mobile sources in 2020 would not be significant. Implementation of Scenario C would not hinder maintenance of the NAAQS within the ROI.

**Mitigation Measures.** Because there are no adverse impacts, mitigation measures are not required. However, several measures are available to minimize emissions of criteria pollutants. Any optional mitigation measures selected would be incorporated by the property recipient and/or user. Dust suppressants, wetting techniques, and monitored speeds on unpaved roads during construction could be implemented to reduce emissions of dust and particulate matter (45-85-percent reduction efficiency). Utilizing low-VOC and environmentally compatible building materials (25-100 percent transfer efficiency) could reduce VOC emissions. Use of energy-efficient appliances, where applicable within the developed areas, could further reduce stationary source emissions (up to 85 percent reduction efficiency). During the operational phase, carpooling would reduce potential mobile source emissions.

**Cumulative Impacts.** No significant impacts to air quality have been identified; therefore, no cumulative impacts are anticipated.

#### **4.5.3.2 Outgrant Alternative.**

Under the Outgrant Alternative, impacts to air quality would be similar to those described under the Proposed Action.

**Mitigation Measures.** Because there are no significant adverse air quality impacts expected, mitigation measures are not required. Optional mitigation measures would be similar to those described for Scenario A, and would be the responsibility of the property user.

**Cumulative Impacts.** No impacts to air quality have been identified; therefore, no cumulative impacts are anticipated.

#### **4.5.3.3 No-Action Alternative.**

Under the No-Action Alternative, the BCBP would not be implemented. Existing operations would continue in compliance with applicable federal, state, and local regulations. No air quality impacts are anticipated.

**Mitigation Measures.** Because there are no adverse air quality impacts expected, mitigation measures are not required.

**Cumulative Impacts.** No impacts to air quality have been identified; therefore, no cumulative impacts are anticipated.

#### **4.5.4 Noise**

Environmental impact analysis related to noise includes the potential effects on local human and animal populations. Noise levels associated with construction activities would be short-term and temporary, and no impacts are anticipated.

##### **4.5.4.1 Proposed Action.**

The following analysis estimates the extent and magnitude of noise levels generated by increased surface traffic under the Proposed Action, using the Federal Highway Administration's Highway Noise Model (see Section 3.5.4). Table 4.5-4 summarizes the predicted noise levels at 5, 10, and 20 years under the Proposed Action.

##### **4.5.4.1.1 Scenario A.**

Noise levels under Scenario A would increase by 2020 due to the increase in traffic volumes. The estimated noise levels ( $L_{dn}$ ) on sensitive receptors would be between 63 dB and 67 dB, an increase of up to 3 dB over No-Action Alternative noise levels (see Table 4.5-4). These noise levels are within 2 dB of the HUD guideline of 65 dB acceptable level for residential areas. Therefore, no significant noise impacts are expected.

##### **4.5.4.1.2 Scenario B.**

Noise levels under Scenario B would increase by 2020 due to the increase in traffic volumes. The estimated noise levels ( $L_{dn}$ ) on sensitive receptors would be between 63 dB and 67 dB, an increase of up to 3 dB over No-Action Alternative noise levels (see Table 4.5-4). These noise levels are within 2 dB of the HUD guideline of 65 dB acceptable level for residential areas. Therefore, no significant noise impacts are expected.

**Table 4.5-4. Predicted Day-Night Average Noise Levels on Sensitive Receptors along Key Roadways**

Sensitive Receptor	Alternative	dB	Increase <sup>(a)</sup> (dB)	dB	Increase <sup>(a)</sup> (dB)	dB	Increase <sup>(a)</sup> (dB)
		Level (L <sub>dn</sub> ) (2005)		Level (L <sub>dn</sub> ) (2010)		Level (L <sub>dn</sub> ) (2020)	
Single-Family Housing on Goliad Road	Scenario A	63	1	64	1	66	3
	Scenario B	63	1	64	1	66	3
	Scenario C	63	1	64	1	66	3
	No-Action Alternative	62	--	63	--	63	--
Residential Area on S.E. Military Drive	Scenario A	65	1	65	1	66	2
	Scenario B	65	1	65	1	66	2
	Scenario C	64	0	65	1	65	1
	No-Action Alternative	64	--	64	--	64	--
Single-Family Housing on South Presa Street	Scenario A	64	0	64	0	65	0
	Scenario B	64	0	64	0	65	0
	Scenario C	64	0	64	0	65	0
	No-Action Alternative	64	--	64	--	65	--
Texas Center for Infectious Disease on S.E. Military Drive	Scenario A	67	0	67	0	67	0
	Scenario B	67	0	67	0	67	0
	Scenario C	67	0	67	0	67	0
	No-Action Alternative	67	--	67	--	67	--

Note: (a) Compared with the No-Action Alternative.

dB = decibel

L<sub>dn</sub> = day-night average sound level

#### 4.5.4.1.3 Scenario C.

Noise levels under Scenario C would increase by 2020 due to the increase in traffic volumes. The estimated noise levels (L<sub>dn</sub>) on sensitive receptors would be between 63 dB and 67 dB, an increase of up to 3 dB over No-Action Alternative noise levels (see Table 4.5-4). These noise levels are within 2 dB of the HUD guideline of 65 dB acceptable level for residential areas. Therefore, no significant noise impacts are expected.

**Mitigation Measures.** Because no adverse impacts have been identified, mitigation measures are not required.

**Cumulative Impacts.** Noise impacts associated with the implementation of the BCBP would be minimal and not significant. However, the impacts associated with the BCBP, when added to other future actions and projects within the region, may create a cumulative impact.

Additional surface traffic or air traffic noise may result and create higher noise levels.

#### **4.5.4.2 Outgrant Alternative.**

Under the Outgrant Alternative, noise impacts would be similar to those described for the Proposed Action.

**Mitigation Measures.** Because no adverse impacts have been identified, mitigation measures are not required.

**Cumulative Impacts.** Noise impacts associated with the implementation of the BCBP would be minimal and not significant. However, the impacts associated with the BCBP, when added to other future actions and projects within the region, may create a cumulative impact.

Additional surface traffic or air traffic noise may result and create higher noise levels.

#### **4.5.4.3 No-Action Alternative.**

Under the No-Action Alternative, traffic volumes in the vicinity of Brooks AFB would increase slightly due to regional growth. No substantial increases in the noise levels in the adjacent residential areas are expected.

**Mitigation Measures.** Because no adverse impacts have been identified, mitigation measures are not required.

**Cumulative Impacts.** No adverse noise impacts have been identified for the No-Action Alternative. Therefore, cumulative impacts are not expected.

### **4.5.5 Biological Resources**

This section discusses potential impacts to vegetation, wildlife, threatened and endangered species, and sensitive habitats at Brooks AFB, from implementation of the Proposed Action, the Outgrant Alternative, and the No-Action Alternative.

#### **4.5.5.1 Proposed Action**

##### **4.5.5.1.1 Scenario A**

**Vegetation.** The majority of the on-base open space is in the east and southeast portions of the base. Plant species present in these open areas are common within the ROI, and are not considered to be sensitive; therefore, no significant impacts to sensitive vegetation are expected. Construction activities would create ground disturbance and short-term impacts to vegetation. However, implementation of Scenario A is not anticipated to result in direct and long-term, irreversible impacts to vegetation.

**Wildlife.** Construction activities would create ground disturbance and short-term impacts to the overall wildlife population. However, most wildlife species known to inhabit the base are common and/or disturbance-tolerant. Potential impacts to wildlife could include loss of foraging habitat, displacement of individuals to adjacent areas, and direct mortality to individuals of less mobile or burrowing species (e.g., pocket gophers, mice). Such impacts to common wildlife species are not expected to be substantial, and implementation of Scenario A is not anticipated to result in direct and long-term, irreversible impacts to the overall wildlife population.

**Threatened and Endangered Species.** No federally or state-listed rare, threatened, or endangered plant or wildlife species are known to occur on Brooks AFB (U.S. Air Force, 1996c). Consequently, there would be no direct impacts to threatened or endangered species on the base with implementation of Scenario A.

Although there is potential for remote indirect impacts to threatened and endangered species associated with the Edwards aquifer and the San Marcos and Comal springs (see Section 3.5.5, Biological Resources), Brooks AFB purchases its water from SAWS and does not directly affect the withdrawal of water from the aquifer. Withdrawal of water from the Edwards aquifer impacts spring flow of the Comal and San Marcos springs, although the relationship between specific withdrawals and spring flow has not been established. The U.S. Fish and Wildlife Service (USFWS) has determined that minimum spring flows are required to avoid impacts on protected species.

The projected water demand due to Scenario A would be negligible compared to the projected demand in the ROI. As discussed in Section 4.5.2.1.1, a portion of the economic activity that is anticipated to occur in the ROI could be absorbed through development of property on Brooks AFB. Increased projected water demand is being considered by SAWS in planning for regional growth. SAWS is also actively pursuing alternative sources of water, other than the Edwards aquifer, to help meet demand. Therefore, impacts to threatened and endangered species are not anticipated.

**Sensitive Habitats.** The southwest and southeast portions of the base support sensitive habitats such as wetlands (see Section 3.5.5.4). Figure 3.5-3 shows the location of the jurisdictional wetlands. The wetlands present on Brooks AFB are all within areas that would not be developed (proposed as open space land use) or disturbed under Scenario A. Further, measures required by the TPDES permit would minimize indirect impacts to wetlands from runoff and erosion. Therefore, implementation of Scenario A is not anticipated to result in direct and long-term, irreversible impacts to the wetland habitats.

#### **4.5.5.1.2 Scenario B.**

Potential impacts to vegetation, wildlife, threatened and endangered species, and sensitive habitats are generally anticipated to be the same as the potential impacts described for Scenario A, in Section 4.5.5.1.1. However, because the acreage to be disturbed by development activities would be less than in

Scenario A, potential impacts to biological resources from implementation of Scenario B are anticipated to be less substantial.

#### **4.5.5.1.3 Scenario C.**

Potential impacts to vegetation, wildlife, threatened and endangered species and sensitive habitats are generally anticipated to be the same as the potential impacts discussed for Scenario A. However, because acreage to be disturbed would be greater than in Scenario A, potential impacts would be expected to be greater.

**Mitigation Measures.** Because there are no significant adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** No significant adverse biological resources impacts have been identified; therefore, cumulative impacts are not expected.

#### **4.5.5.2 Outgrant Alternative.**

Potential impacts to biological resources would be similar to those discussed under the Proposed Action.

**Mitigation Measures.** Because there are no significant adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** No significant adverse biological resources impacts have been identified; therefore, cumulative impacts are not expected.

#### **4.5.5.3 No-Action Alternative.**

If the No-Action Alternative is implemented, there would be no direct or indirect impacts on biological resources. In addition, because implementation of SAWS's recycled water distribution system would occur, water usage will be less than under baseline conditions. Therefore, no impacts to biological resources are anticipated.

**Mitigation Measures.** Because there are no significant adverse impacts, mitigation measures are not required.

**Cumulative Impacts.** No significant adverse biological resources impacts have been identified; therefore, cumulative impacts are not expected.

#### **4.5.6 Cultural Resources**

The transfer, lease, sale, or outgrant of federal property or any other type of project that falls under the requirements of cultural resources legislative mandates constitutes an undertaking under the NHPA. These types of activities have the potential to cause adverse effects on any historic properties within the ROI. However, adverse effects can be mitigated to non-adverse levels by



applying appropriate mitigation measures (e.g., placing preservation covenants on transfer mechanisms).

Potential adverse effects on historic properties identified within the Brooks AFB ROI have been assessed by (1) identifying the types and possible locations of activities that could directly or indirectly affect resources, and (2) identifying the nature and potential significance of cultural resources in potentially affected areas. Pursuant to the NHPA, consultation, as directed by the Section 106 review process, has been initiated with the Texas SHPO (see Appendix I).

#### **4.5.6.1 Proposed Action**

##### **4.5.6.1.1 Scenario A**

**Prehistoric and Historic Archaeological Resources.** Under Scenario A, the Air Force would transfer all or portions of Brooks AFB out of federal ownership. The transferred property would experience a wide range of land reuses (see Figure 2.3-1) and some areas would likely undergo construction of new facilities and/or other ground-disturbing activities that could potentially adversely affect archaeological properties. The base has been surveyed for prehistoric and historic archaeological resources and has been found to be devoid of them. No further archaeological studies are required for the base and the Texas SHPO has concurred (Geo-Marine, Inc., 1995). As a result, there are likely no prehistoric or historic archaeological properties that might be affected by Scenario A.

**Historic Buildings and Structures.** Under this scenario, the Air Force could transfer property that encompasses currently identified historic properties. These include Facility 671, the Museum Building (historically used as Hangar 9), which is listed in the National Register and was designated a National Historic Landmark in 1974; and Facilities 538 and 1176, which have been determined eligible for listing in the National Register (see Figures 2.3-1 and 3.5-5). In addition, a historic building evaluation, under the Man in Space historic context, is in progress and may identify additional historic properties.

Although plans for the reuse of specific facilities at Brooks AFB are not yet available, each of the three identified historic properties have the potential to be adversely affected by reuse activities (renovation, demolition) associated with the Mixed Use and Research and Development Park land uses described Scenario A. Once the historic building evaluation of the SAM-100 area and the Veterinarian Science Support Colony is completed, any historic properties identified within those areas could also be adversely affected by these land uses. Potential adverse effects on historic properties have been considered during the preparation of this EIS, and appropriate measures to offset any effects are described below.

**Traditional Resources.** There are currently no identified traditional cultural properties at Brooks AFB. Based on the results of the archaeological investigation, which indicated that the entirety of the base has been heavily disturbed from construction and operational use, there is low probability for these types of resources to occur and no effects are expected.

#### **4.5.6.1.2 Scenario B.**

Under Scenario B, potential impacts to cultural resources would be similar to those described for Scenario A.

#### **4.5.6.1.3 Scenario C.**

Under Scenario C, potential impacts to cultural resources would be similar to those described for Scenario A.

**Mitigation Measures.** Potential adverse effects on any historic buildings and structures (e.g., demolition, renovation), either currently identified or identified as the result of the Man in Space historic building evaluation, would be reduced to non-adverse levels through measures agreed upon by the Air Force, the Texas SHPO, and, as appropriate, the CoSA Historic Preservation Officer, the San Antonio Conservation Society, and the Advisory Council on Historic Preservation. Typical measures for these types of effects include recordation using guidance provided by the HABS/Historic American Engineering Record (HAER) Division of the National Park Service and/or inclusion of preservation/protection covenants with any transfer mechanisms (i.e., deeds). Any National Register-listed properties could also be delisted through consultation among the Air Force, the Texas SHPO, and the National Park Service. Delisting would remove the need for protection under the NHPA.

Although there are no currently identified prehistoric or historic archaeological resources or traditional cultural properties at Brooks AFB that meet the criteria for listing in the National Register, the potential for unexpected discovery of these types of historic properties is always a possibility. As such, if cultural remains (particularly human remains) are unexpectedly encountered during any of the reuse scenarios, all activities will cease in the immediate vicinity and the Texas SHPO, the City of San Antonio Historic Preservation Officer, and/or any potentially affected Native American group will be consulted. Subsequent actions would follow the guidance provided in 36 CFR Part 800.13, the Native American Graves Protection Repatriation Act, and City of San Antonio Ordinance 80910 (as appropriate).

**Cumulative Impacts.** A review of other future actions in the region (see Section 2.3) indicates that no cumulative effects would occur on prehistoric or historic archaeological resources. Brooks AFB has been found to be devoid of these types of resources and the SHPO has concurred. Because of the low probability for traditional resources to occur, the potential for cumulative impacts on this type of resource is considered to be low.

If the Veterinarian Science Support Colony is found to be eligible for listing in the National Register, potential cumulative impacts could occur to that property from residential development adjacent to the southwest portion of the base (see Section 2.4). Impacts could occur as a result of visual encroachment from construction that may be incompatible with the property. If required, measures to mitigate this type of impact would be determined through consultation among the Air Force, the Texas SHPO, and, as appropriate, the CoSA Historic Preservation

Officer, the San Antonio Conservation Society, and the Advisory Council on Historic Preservation.

Cumulative effects on historic properties situated adjacent to the installation (i.e., remnants of the historic acequias and features within the San Antonio Missions National Historical Park) are not expected. As noted in Section 4.2.2, potential new development along the west base boundary, within the viewshed of the San Antonio Missions National Historical Park, would be minimal. The northwest portion of the base is currently developed, with the exception of two small parcels of undeveloped open space that could be used for Mixed Use or Research and Development under Scenario A or undeveloped under Scenarios B and C. Any new construction in this area is not expected to be visible from National Park Service property. The central portion of the west boundary is open space associated with the golf course and the Berg's Mill Creek 100-year floodplain that exits along the base on the west boundary. This area is generally identified as Public/Open Space in all scenarios with no large-scale construction expected.

The south portion of the west base boundary, which is slated for Research and Development uses, is at a slightly lower elevation and is further east than the rest of the base boundary; therefore, new development in this area is not expected to negatively impact the Park's viewshed. This area is currently screened from the view of National Park Service properties by mature vegetation on National Park Service property as well as privately owned parcels. While multi-story buildings, if constructed in this area, might be visible from National Park Service property, this type of construction is unlikely given the identified land use, the amount of property available, and the type and layout of current development on the base.

Increases in traffic patterns would not alter the character or use of historic resources within the Park significantly from baseline conditions; however, long-term positive effects on the Park, from increased use of the South Presa Street area, could result from increased awareness and use of the Park and its amenities.

#### **4.5.6.2 Outgrant Alternative.**

Under the Outgrant Alternative, the Air Force would continue to own Brooks AFB, but would outgrant parcels, facilities, or infrastructure to nonfederal or other federal entities utilizing leases, licenses, permits, or rights-of-entry. Under the NHPA, utilization of historic properties by nonfederal parties (i.e., outgrant mechanisms) carries the same implications as a property transfer (i.e., deed) and requires appropriate measures to ensure their protection.

**Mitigation Measures.** Mitigation measures under the Outgrant Alternative are the same as described under the Proposed Action.

**Cumulative Impacts.** Cumulative impacts would be the same as described for the Proposed Action.

#### **4.5.6.3 No-Action Alternative.**

Under the No-Action Alternative, the BCBP would not be implemented. Historic properties would continue to be managed in accordance with established federal statutes and Air Force policies and guidance, including the Brooks AFB Historic Preservation Plan (Geo-Marine, Inc., 1995), and no adverse effects would be expected.

**Cumulative Impacts.** Because no adverse impacts have been identified, no cumulative impacts are expected.

## **4.6 ENVIRONMENTAL JUSTICE**

Based upon the analysis conducted for this EIS, it was determined that activities associated with the Proposed Action, Outgrant Alternative, and No-Action Alternative would not have significant adverse impacts on local community resources (i.e., community setting [employment, income, population], land use and aesthetics, transportation, and utilities), hazardous materials, solid and hazardous waste, geology and soil, water resources, air quality, noise, and biological resources. Cultural resources could be adversely affected; however, these impacts would only occur on base. Because no off-base adverse impacts have been identified for any of the resources, no disproportionately high and adverse impacts to low-income and minority populations would be expected and an environmental justice analysis is not required.

## **5.0 CONSULTATION AND COORDINATION**

---

The federal, state, and local/regional agencies, and private organizations that were contacted during the preparation of this environmental impact statement are listed below.

### **FEDERAL AGENCIES**

U.S. Department of Agriculture, Natural Resources Conservation Service  
U.S. Environmental Protection Agency, Region VI  
U.S. Department of the Interior, National Park Service

### **STATE AGENCIES**

Texas Historical Commission (State Historic Preservation Officer)  
Texas Natural Resource Conservation Commission  
Texas Parks and Wildlife Department

### **LOCAL/REGIONAL AGENCIES**

City of San Antonio Economic Development Department  
City of San Antonio Planning Department  
City of San Antonio Public Works Department  
Edwards Aquifer Authority  
Greater San Antonio Chamber of Commerce  
Bexar County Metropolitan Planning Organization  
San Antonio Water System  
VIA Metropolitan Transit

### **PRIVATE ORGANIZATIONS**

Alamo Area Council of Governments  
BFI Waste Systems  
Brooks Advisory Board  
Brooks Heritage Foundation  
City Public Service  
GE Reaves Engineering, Inc.  
Stinson Airport  
Texas Disposal System, Inc.  
Waste Management Company  
Weitzman Group

**THIS PAGE INTENTIONALLY LEFT BLANK**

## 6.0 LIST OF PREPARERS AND CONTRIBUTORS

---

Sara Achinger, Captain, U.S. Air Force, 311 HSW/JA

J.D., 1994, University of Minnesota, Minneapolis, Minnesota

B.A., 1990, Economics, University of Florida, Gainesville, Florida

Years of Experience: 6

Charles Aukland, Captain, U.S. Air Force, HQ AFCEE/ECA

M.S., 1998, Engineering Management, University of Missouri, Rolla

B.S., 1993, Civil Engineering, California State University, Sacramento

Years of Experience: 7

Dale Clark, Environmental Project Manager, HQ AFCEE/ECA

M.S., 1989, Civil Engineering, North Carolina State University, Raleigh

B.S., 1982, Civil Engineering, Auburn University, Auburn, Alabama

Years of Experience: 15

Derrick Coleman, Senior Hydrologist, Earth Tech

Ph.D., 1982, Geography (Geomorphology), The John Hopkins University, Baltimore, Maryland

A.B., 1975, Physical Geography, University of California, Berkeley

Years of Experience: 20

Larry Farlow, Deputy Director of Public Affairs, 311 HSW/PA

Years of Experience: 18

Quent Gillard, Q...analysis and research, inc., Independent Consultant

Ph.D., 1975, Geography, University of Chicago, Illinois

M.S., 1971, Geography, Southern Illinois University, Carbondale

B.A., 1969, Geography, University of Chicago, Illinois

Years of Experience: 30

Luke Harp, City Base Program Office, 311 HSW/CDB

M.S., 1981, Logistic Management, Air Force Institute of Technology, Dayton, Ohio

B.S., 1978, Industrial Engineering, California Polytechnic State University, San Luis Obispo, California

Years of Experience: 26

Jennifer Harriger, Project Environmental Professional, Earth Tech

B.A., 1993, Geography/Environmental Studies, University of California, Los Angeles

Years of Experience: 5

Hamid Kamalpour, Environmental Engineer, 311 ABG/CEV

B.S., 1986, Civil Engineering, University of Texas at San Antonio

Years of Experience: 9

Herbert Klein, Senior Reengineering Analyst, Karta Technology, Inc.

M.B.A., 1971, International American University, Puerto Rico

B.S., 1963, Electrical Engineering, University of Bridgeport, Connecticut

Years of Experience: 36

Maria Langmaack, Senior Environmental Professional, Earth Tech  
B.A., 1987, Geography, California State University, San Bernardino  
Years of Experience: 12

Jason Martin, P.E., Environmental Engineer, Earth Tech  
M.S., 1998, Environmental Engineering, University of Texas, Austin  
B.S., 1992, Civil Engineering, Washington University, St. Louis, Missouri  
B.A., 1990, Economics, Grinnell College, Grinnell, Iowa  
Years of Experience: 7

Lynn McIntosh, Senior Environmental Professional, Earth Tech  
B.S., 1981, Land Use Planning, Resource Management, University of Wisconsin, Eau Claire  
Graduate Work, Resource Management, University of Wisconsin, Stevens Point  
Years of Experience: 14

Paige Peyton, Senior Cultural Resources Manager, Earth Tech  
M.A., 1990, Anthropology/Geography, California State University, San Bernardino  
B.A., 1987, Anthropology, California State University, San Bernardino  
Years of Experience: 15

Ray Ramos, P.E., Environmental Professional, Earth Tech  
M.S., 1997, Atmospheric Science, University of Wisconsin, Milwaukee  
B.S., 1995, Atmospheric Science, University of Wisconsin, Madison  
Years of Experience: 3

Ian Smith, P.E., REM, Brooks City Base Program Office, 311 HSW/CDB  
M.S., 1990, Civil Engineering, University of Nebraska  
B.C.E., 1978, Civil Engineering, Georgia Institute of Technology, Atlanta  
Years of Experience: 22

Wayne Snowbarger, Senior Engineer, Earth Tech  
M.S., 1975, Civil Engineering, Purdue University, West Lafayette, Indiana  
B.S., 1970, Civil Engineering, Colorado State University  
Years of Experience: 26

Manjunath Venkat, Senior Biologist, Earth Tech  
M.S., 1986, Environmental Studies, Baylor University, Waco, Texas  
B.S., 1980, Biological Science, The National College, Bangalore University, India  
Years of Experience: 19

Barbara Zeman, Vice President, Senior Section Manager, Earth Tech  
M.S., 1978, Biomedical Engineering, University of Southern California, Los Angeles  
B.S., 1976, Electrical Engineering, Rutgers University, New Jersey  
Years of Experience: 18



## 7.0 REFERENCES

---

- AFIERA/SDRH, 2000. Personal communication with Ray Fritts (Air Force Radioactive and Mixed Waste Office) regarding off-site disposal of radioactive commodities, November 30.
- AFMOA/SGOR, 2000. Memorandum to AFIERA/SDRH (AFRMWO) regarding permission to use radioactive materials and USAF Radioactive Material Permit Number TX-00446-00/03AFP, Docket No. 030-00446, October 2.
- Air Force Civil Engineering Support Agency, 1999. Draft Feasibility Analysis Report, Volume I - U.S. Air Force Utilities Privatization, Brooks Air Force Base, Texas, March.
- Barker, R.A., P.W. Bush, and E.T. Baker, 1994. Geologic History and Hydrogeologic Setting of the Edwards-Trinity Aquifer System, West Central Texas. U.S. Geological Survey Water-Resources Investigations 94-4039. Austin, Texas.
- Barnes, V.E., 1974. Geologic Atlas of Texas, San Antonio Sheet. University of Texas at Austin, Bureau of Economic Geology.
- Black, S.L., 1986. The Clemente and Herminia Hinojsa Site, 41JW8: A Toyah Horizon Campsite in Southern Texas. Special Report No. 18, Center for Archaeological Research, University of Texas at San Antonio.
- Black, S.L., 1989. Central Texas Plateau Prairie. In From the Gulf to the Rio Grande: Human Adaptation in Central, South, and Lower Pecos Texas, by T.R. Hester, S.L. Black, D.G. Steele, B.W. Olive, A.A. Fox, K.J. Reinhard, and L.C. Bennett, pp. 17-38. Research Series 33. Arkansas Archaeological Survey, Fayetteville.
- Bureau of Economic Analysis, 2000a. Regional Economic Information for San Antonio, Texas MSA 1987-97: Full-Time and Part-Time Employees by Industry, [http://www.govinfo.library.orst.edu/cgi-bin/reis-list?9\\_9\\_25-7240.txm](http://www.govinfo.library.orst.edu/cgi-bin/reis-list?9_9_25-7240.txm), June 29.
- Bureau of Economic Analysis, 2000b. Full-Time and Part-Time Employment by Industry: Bexar, Texas, [http://www.bea.doc.gov.bea.regional/reis/ca25/48ca25\\_48029.htm](http://www.bea.doc.gov.bea.regional/reis/ca25/48ca25_48029.htm), June 29.
- Bureau of Economic Analysis, 2000c. REIS Bearfacts for San Antonio, Texas MSA 1996-97, [http://www.govinfo.library.orst.edu/cgi-bin/bfact?9\\_9\\_25-7240.txm](http://www.govinfo.library.orst.edu/cgi-bin/bfact?9_9_25-7240.txm), June 29.
- Bureau of Economic Analysis, 2000d. REIS Bearfacts for San Antonio, Texas MSA 1987-97, [http://www.govinfo.library.orst.edu/cgi-bin/bfact?8\\_9\\_25-7240.txm](http://www.govinfo.library.orst.edu/cgi-bin/bfact?8_9_25-7240.txm), June 29.
- Bureau of Economic Analysis, 1995. Projections to 2045 for San Antonio, Texas, MSA, [http://govinfo.library.orst.edu/cgi-bin/proj2045?9\\_25\\_7240.txm](http://govinfo.library.orst.edu/cgi-bin/proj2045?9_25_7240.txm), June 29.
- Burchell, R.W., et. al, 1994. Development Impact Assessment Handbook, Washington, DC: Urban Land Institute.
- Campbell, T.N., 1988. Indians of Southern Texas and Northeastern Mexico, Selected Writings of Thomas Nolan Campbell. Texas Archaeological Research Laboratory, University of Texas at Austin.
- City of San Antonio, 1997a. San Antonio Master Plan Policies Adopted: May 29, 1997, May.
- City of San Antonio, 1999b. Preliminary Drainage Report for the Goliad Road Outfall Channel, December.

- City of San Antonio, n.d. Unified Development Code, Department of Planning.
- Council on Environmental Quality, 1978. Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.
- Earth Tech, Inc., 1998. On-base traffic and gate counts, December 9-10.
- Edwards Aquifer Authority, 1998. Groundwater Management Plan (Draft), July.
- Edwards Underground Water District, n.d. "Threatened and Endangered Plant and Animal Species of the Edwards Aquifer."
- Federal Highway Administration, 1978. Highway Noise Prediction Model, FHWA-RD-77-118, December.
- Fox, D.E., 1979. The Lithic Artifacts of Indians at the Spanish Colonial Missions, San Antonio, Texas. Research Report No. 8, Center for Archaeological Research, University of Texas at San Antonio.
- Galson Corporation, 1995. Final Report – Brooks Air Force Base Lead-Based Paint Identification Survey, prepared for the U.S. Air Force, Armstrong Laboratory and HSC/EME, May.
- Geo-Marine, Inc., 1995. Brooks Air Force Base Historic Preservation Plan, prepared under contract to U.S. Army Corps of Engineers, Fort Worth District, for Brooks Air Force Base, San Antonio, Texas.
- Greater San Antonio Chamber of Commerce, 1998a. The Guide to San Antonio, Economic Research Department, Spring.
- Greater San Antonio Chamber of Commerce, 1998b. Demographics.
- Greater San Antonio Chamber of Commerce, 1998c. San Antonio Economic Trends, 1988-1998, An Analysis of Ten-Year Historical Trends and Projections, Economic Research Department, January.
- Greater San Antonio Chamber of Commerce, 1998d. 1998 Economic Profile of San Antonio, Economic Profile Magazine, Economic Research Department.
- Groschen, G.E., 1996. Hydrologic Factors that Affect the Flowpath of Water in Selected Zones of the Edwards Aquifer, San Antonio Region, Texas. U.S. Geological Survey Water-Resources Investigations 96-4046, prepared in cooperation with the San Antonio Water System. Austin, Texas.
- Hester, T.R., 1989. "Historic Native American Populations." In From the Gulf to the Rio Grande: Human Adaptation in Central, South, and Lower Pecos Texas, by T.R. Hester, S.L. Black, D.G. Steele, B.W. Olive, A.A. Fox, K.J. Reinhard, and L.C. Bement, pp. 77-84, Research Series No. 33, Arkansas Archaeological Survey, Fayetteville.
- Human Systems Center, 1997. Memorandum for Headquarter Air Force Materiel Command, Civil Engineering, from Human Systems Center, Environmental Management, regarding elimination of polychlorinated biphenyls, November 7.
- Human Systems Wing Environmental Management Directorate and Air Force Center for Environmental Excellence, 1999. Biological Survey, Brooks Air Force Base, Texas, March.
- Institute of Transportation Engineers, 1997. Trip Generation (6th ed.).

- McGraw, A.J., and K. Hindes, 1987. Chipped Stone and Adobe: A Cultural Resources Assessment of the Proposed Applewhite Reservoir, Bexar County, Texas. Archaeological Survey Report No. 163, Center for Archaeological Research, University of Texas at San Antonio.
- Metropolitan Planning Organization, 1993a. Mission Trails Planning Study for a Multi-Modal Transportation System Enhancing Access to the San Antonio Missions and the Missions Corridor, San Antonio, Texas, October.
- Metropolitan Planning Organization, 1993b. Mission Trails Planning Study, Volume Two, Community and Public Participation, October.
- Metropolitan Planning Organization, 1993c. Mission Trails Planning Study, Volume Three, Environmental Assessment, October.
- National Park Service, 1997. "San Antonio Missions." Brochure about the missions near San Antonio, Texas, and the acequia system.
- Pacific Environmental Services, Inc., 1996. Final Report for the Asbestos Identification Surveys, Brooks Air Force Base, Texas, prepared for Armstrong Laboratory, AL/OEMI, July.
- R.S. Means Co., Inc., 1999. R.S. Means Square Foot Costs: 2000, 21st Annual Edition, Kingston, Massachusetts.
- Ruecking, F., Jr., 1955a. The Coahuiltecan Indians of South Texas and Northeast New Mexico. M.A. Thesis, University of Texas at Austin.
- Ruecking, F., Jr., 1955b. The Social Organization of the Coahuiltecan Indians of Southeastern Texas and Northern New Mexico. Texas Journal of Science 7(4): 357-388.
- San Antonio Water System, 1993. Water Conservation and Reuse Plan, Conservation, Reuse, and Community Programs Department, Planning Group, November.
- San Antonio Water System, 1996. 1996-2006 Land Use Assumptions Plan (Draft).
- San Antonio Water System, 1998. San Antonio Water System Water Resource Plan - Securing Our Water Future Together (Draft I), June.
- Scott R.F., and D.E. Fox, 1982. Excavations at Sites 41 LK 31/32 and 41 LK 202 in the Choke Canyon Reservoir, South Texas. Choke Canyon Reservoir Series Report No. 8. Center for Archaeological Research, University of Texas at San Antonio.
- Shuetz, M.K., 1968. The History and Archaeology of Mission San Juan Capistrano, San Antonio, Texas, Volume I. Archaeological Program Report No. 10, State Building Commission, Austin.
- Shuetz, M.K., 1969. The History and Archaeology of Mission San Juan Capistrano, San Antonio, Texas, Volume II. Archaeological Program Report No. 11, State Building Commission, Austin.
- South Central Community and City of San Antonio Planning Department, 1999. South Central San Antonio Community Plan, August 19.
- South San Antonio Chamber of Commerce, 1996. Avenidas del Rio Business Corridor Report, City of San Antonio Economic Development Department, November.

- South Coast Air Quality Management District, 1993. CEQA Air Quality Handbook, Diamond Bar, California, April.
- Stein, W.P., and G.B. Ozuna, 1996. Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Bexar County, Texas. U.S. Geological Survey Water-Resources Investigations 95-4030, prepared in cooperation with the San Antonio Water System. Austin, Texas.
- Stevens, D., 2000. Personal communication between Don Stevens, Donald E. Stevens, AIA, Architect, LLC and Quent Gillard, QAR, Inc., July 10.
- Texas Department of Economic Development, 1997. Map of San Antonio Enterprise Zones and Defense Zone, prepared by the City of San Antonio Planning Department.
- Texas Natural Resource Conservation Commission, 1997. Notice of Registration for Industrial and Hazardous Waste, Brooks Air Force Base, Texas.
- Texas Natural Resource Conservation Commission, 1998. Air emissions data provided via facsimile by Sam Wells, Texas Natural Resource Conservation Commission, Air Quality Planning, July and September.
- Texas Parks and Wildlife Department, 1998. Special Species List, Bexar County, Texas.
- Transportation Research Board, 1998. Highway Capacity Manual, Third Edition, National Research Council, Washington DC.
- U.S. Air Force, 1985. Installation Restoration Program, Phase I Records Search, Brooks Air Force Base, Texas, March.
- U.S. Air Force, 1989. Base Comprehensive Plan, Brooks Air Force Base, Texas, August.
- U.S. Air Force, 1992. Seismic Design for Buildings, Air Force Manual 88-3, October.
- U.S. Air Force, 1993. Results of Radon Assessment and Mitigation Program (RAMP) Survey.
- U.S. Air Force, 1994. Environmental Assessment for Interim Buildings for the Population Research Branch at Brooks Air Force Base, Texas, prepared for Armstrong Laboratory, Aerospace Medicine Directorate, August.
- U.S. Air Force, 1995. Brooks Air Force Base, Integrated Pest Management Plan, June (Revised November 1997).
- U.S. Air Force, 1996a. Brooks Air Force Base Hazardous Waste Management Plan, Human Systems Center, Environmental Management, September.
- U.S. Air Force, 1996b. Brooks Air Force Base Solid Waste Management Plan, Human Systems Center, Environmental Management, August.
- U.S. Air Force, 1996c. Final Brooks Air Force Base Integrated Natural Resources Management Plan, prepared for Human Systems Center, Environmental Management by EA Engineering, Science, and Technology, December. (Updated by Environmental Quality Management, Inc.).
- U.S. Air Force, 1996d. Final Mobile Source Inventory for Brooks Air Force Base, July.

- U.S. Air Force, 1997a. Final Environmental Assessment for Buildings 698, 696, 606, and 605 Demolition Project, Brooks Air Force Base, Texas, prepared for Human Systems Center, Environmental Management, August.
- U.S. Air Force, 1997b. Final Environmental Assessment – Replace Military Fueling System, Brooks Air Force Base, Texas, prepared by Headquarters Air Force Center for Environmental Excellence, December.
- U.S. Air Force, 1997c. Environmental Baseline Survey (EBS) for Challenger Learning Center, Brooks Air Force Base, Texas, November.
- U.S. Air Force, 1997d. Installation Restoration Program, Management Action Plan, November.
- U.S. Air Force, 1997e. Final Environmental Assessment – Addition and Alteration Building 803, Brooks Air Force Base, Texas, prepared by Air Force Center for Environmental Excellence, December.
- U.S. Air Force, 1997f. Draft Hazardous Waste Management Plan, Brooks Air Force Base, Texas, prepared for Air Force Materiel Command, Human Systems Center, Environmental Management, October.
- U.S. Air Force, 1997g. Socioeconomic Impact Analysis Study, Disposal of Kelly Air Force Base, Texas, February.
- U.S. Air Force, 1997h. Final Programmatic Environmental Impact Statement, Disposal of Kelly Air Force Base, Texas, May.
- U.S. Air Force, 1998a. Basewide Environmental Baseline Survey (EBS), Brooks Air Force Base, Texas, prepared by Air Force Center for Environmental Excellence, Environmental Conservation and Planning Directorate, June.
- U.S. Air Force, 1998b. Final Environmental Assessment - Recycled Water Project, Brooks Air Force Base, Texas, prepared by Air Force Center for Environmental Excellence, March.
- U.S. Air Force, 1998c. Storm Water Pollution Prevention Plan, Brooks Air Force Base, Texas, Air Force Materiel Command, Human System Center/Environmental Management, March.
- U.S. Air Force, 1998d. Comprehensive Plan, Base Layout, Brooks Air Force Base, Texas (Tab No. C-1).
- U.S. Air Force, 1999a. Biological Survey, Brooks Air Force Base, Texas, prepared for 311 ABG/CEV and Headquarters Air Force Center for Environmental Excellence, March.
- U.S. Air Force, 1999b. Final Environmental Assessment for Utility System Privatization, Brooks Air Force Base, Texas, October.
- U.S. Air Force, 1999c. Draft Environmental Assessment for the Brooks City Base Concept, Brooks Air Force Base, Texas, March.
- U.S. Air Force, 2000. Personal communication with Jason Gorden (311 ABG/CEV) regarding status of Installation Restoration Program sites, July 18.
- U.S. Army Corps of Engineers, 1997. Correspondence regarding jurisdictional wetland delineation at Brooks Air Force Base (Project Number 199600715), February 7.

- U.S. Bureau of the Census, 1991. 1990 Census of Population and Housing, Department of Commerce, Washington DC.
- U.S. Bureau of the Census, 1999. Population Estimates for Counties by Age Group: Texas, <http://www.census.gov/population/estimates/county/ca/catx98.txt>, June 29.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 1965. Soil Conservation Service Soil Survey of Bexar County, Texas, Map Sheets 63 and 71.
- U.S. Department of Agriculture, 1991. Soil Survey - Bexar County, Texas, Soil Conservation Service and Texas Agricultural Experiment Station, June.
- U.S. Department of Defense, 1998. Biological Assessment - The Effect of Water Draw on the Edwards Aquifer by Department of Defense Installations in the San Antonio Area, February.
- U.S. Department of Transportation, 1980. Guidelines for Considering Noise in Land Use Planning and Control, Federal Interagency Committee on Urban Noise, June.
- U.S. Geological Survey, 1992. Southton Quadrangle, Texas, 7.5-minute Series (Topographic), Scale 1:24,000.
- U.S. Geological Survey, 1996. Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Bexar County, Texas, Water Resources Investigations Report 95-4030, prepared in cooperation with the San Antonio Water System, 1996.
- Vista Technologies, 1996. Environmental Conservation and Water Quality Assessment/Study Report to the Human Systems Center, System Program Office (HSC/YAK, HSC/EM), Brooks Air Force Base, Texas, November 18.
- Yee, D., and J. Bradford, 1999. Technical Report: 1999 Employment Density, Portland, Oregon: METRO Growth Management Service Department, May 5.

## 8.0 INDEX

---

### A

Aboveground storage tank (AST), 3-27, 3-28  
Area of concern (AOC), 3-30, 3-39, 3-41, 4-24, 4-26, 4-29, 4-30, 4-31, 4-33  
Asbestos-containing material (ACM), 3-41, 3-42, 3-56, 4-34, 4-35, 4-38

### B

Base operating support (BOS), 2-2, 2-3, 2-11, 2-16, 2-20

### C

Carbon monoxide (CO), 3-56, 3-57, 3-58, 3-60, 4-48, 4-49, 4-50, 4-51, 4-52  
Clean Air Act (CAA), 1-7, 3-41, 3-56, 3-60, 4-46, 4-47, 4-49, 4-51  
Clean Water Act (CWA), 3-27, 3-63, 4-44  
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 3-26, 3-33

### D

Department of Defense (DOD), 1-1, 1-2, 3-22, 3-26, 3-29, 3-31, 3-33, 3-34, 3-68, 4-25, 4-29, 4-38  
Department of Transportation (DOT), 3-27

### E

Edwards Aquifer, 3-54  
Endangered Species, 2-28, 3-61, 3-62, 4-55, 4-56  
Environmental Protection Agency (EPA), 1-3, 1-7, 2-27, 2-28, 3-26, 3-27, 3-29, 3-33, 3-34, 3-41, 3-42, 3-56, 3-57, 3-60, 4-33, 4-38, 4-44, 4-46, 4-47, 4-49, 4-51, 4-52  
Erosion, 2-26, 3-47, 3-51, 4-40, 4-41, 4-43, 4-44, 4-45, 4-56

### F

Floodplain(s), 3-53, 4-10, 4-40, 4-44, 4-59

### G

Groundwater, 2-26, 3-33, 3-35, 3-36, 3-37, 3-38, 3-41, 3-51, 3-53, 3-54, 3-55, 3-60, 4-30, 4-33, 4-40, 4-42, 4-43, 4-44, 4-45

### H

Hazardous air pollutants (HAPs), 2-27, 3-56, 3-58, 4-48, 4-51

### I

Installation Restoration Program (IRP), 2-2, 2-7, 2-17, 2-25, 2-28, 3-30, 3-33, 3-34, 3-35, 3-36, 3-37, 3-38, 3-39, 3-41, 3-55, 4-24, 4-26, 4-28, 4-29, 4-30, 4-31, 4-33, 4-34, 4-35, 4-38

### L

Lead-Based Paint (LBP), 2-25, 3-33, 3-43, 4-28, 4-34, 4-35, 4-38  
Level of Service (LOS), 3-15, 3-16, 3-18, 3-19, 3-20, 3-22, 4-12, 4-13, 4-14, 4-15, 4-16, 4-17, 4-18, 4-19

### M

Metropolitan Statistical Area (MSA), 3-1

### N

National Ambient Air Quality Standards (NAAQS), 2-27, 2-28, 3-56, 3-60, 4-46, 4-47, 4-50, 4-51, 4-52  
National Emission Standards for Hazardous Air Pollutants (NESHAP), 3-41, 3-56  
National Environmental Policy Act (NEPA), 1-1, 1-3, 1-4, 2-1, 2-2, 3-68, 4-1

National Historic Preservation Act  
(NHPA), 3-63, 3-64, 4-57, 4-59,  
4-60  
National Pollution Discharge Elimination  
System (NPDES), 1-7, 2-26,  
2-28, 3-55, 4-40, 4-41, 4-43,  
4-44, 4-45  
Native American, 3-68, 4-59  
Nitrogen dioxide (NO<sub>2</sub>), 3-56, 3-57  
Notice of Intent (NOI), 1-3, 1-4, 1-5

## O

Oil/Water Separator (OWS), 3-28, 4-23  
Ozone (O<sub>3</sub>), 3-56, 3-57, 3-60, 4-46

## P

Particulate matter equal to or less than  
10 microns in diameter (PM<sub>10</sub>),  
3-56, 3-57, 3-58, 4-47, 4-48,  
4-49, 4-50, 4-51, 4-52  
polychlorinated biphenyl (PCB), 3-33,  
3-39

## R

Record of Decision (ROD), 1-2, 1-3  
Resource Conservation and Recovery  
Act (RCRA), 1-7, 3-27, 3-30,  
3-31, 3-33, 3-34, 4-44

## S

San Antonio Water System (SAWS),  
2-21, 2-26, 2-28, 3-22, 3-23,  
3-24, 3-54, 3-55, 4-20, 4-21,  
4-44, 4-56, 4-57  
State Historic Preservation Officer  
(SHPO), 2-28, 3-63, 3-64, 3-65,  
3-66, 4-57, 4-58, 4-59  
State Implementation Plan (SIP), 3-56,  
4-46  
Storm Water Pollution Prevention Plan  
(SWPPP), 4-40, 4-41, 4-43,  
4-45  
Sulfur dioxide (SO<sub>2</sub>), 3-56, 3-57, 3-58,  
3-60, 4-48, 4-49, 4-50, 4-51,  
4-52

## T

Texas Natural Resource Conservation  
Commission (TNRCC), 1-7,  
3-27, 3-31, 3-32, 3-33, 3-34,  
3-35, 3-37, 3-38, 3-41, 3-42,  
3-55, 3-58, 3-60, 4-30, 4-33,  
4-43, 4-50  
Texas Pollutant Discharge Elimination  
System (TPDES), 2-26, 2-28,  
3-55, 4-43, 4-44, 4-45, 4-56  
Toxic Substances Control Act (TSCA),  
3-33, 3-41, 4-29

## U

U.S. Fish and Wildlife Service  
(USFWS), 4-56  
Underground Storage Tank (UST), 3-27,  
4-23

## V

Volatile organic compound (VOC), 3-27,  
3-56, 3-58, 3-60, 4-48, 4-49,  
4-50, 4-51, 4-52

## W

Wetlands, 2-7, 3-62, 3-63, 4-41, 4-43,  
4-56



## 9.0 PUBLIC COMMENTS AND RESPONSES

---

### INTRODUCTION

The Air Force has complied with the NEPA mandate of public participation in the EIAP in two ways:

- A public hearing was held in San Antonio, Texas, on October 25, 2000, at which the Air Force presented the findings of the DEIS for the implementation of the BCBP.
- The DEIS was made available for public review and comment between September and November 2000.

Public comments received both verbally at the DEIS public meeting and in writing during the response period have been reviewed and are addressed by the Air Force in this section.

### ORGANIZATION

The Public Comments and Responses section is organized into several subsections, as follows:

- This Introduction, which describes the process, organization, and approach taken in addressing public comments
- An index of commentors
- A consolidated comment-response section
- Public comment documents
  - A transcript of the public hearing
  - Photocopies of written comments.

Comments received have been consolidated to focus on the issue of concern, and a response is provided that addresses each comment. Within the comments-responses portion of this section, written or spoken comments may be paraphrased to clarify and/or emphasize the issue of concern. Some comments simply state a fact or an opinion; for example, “the DEIS adequately assesses the impacts of [a resource area].” Such comments, although appreciated, do not require a specific response and are not called out herein.

Comments requiring responses are assigned unique identification numbers. The identification number provides a cross-reference from the consolidated set of review comments/responses to the original comment as submitted by the commentor. For example, the second comment in Document 4 is designated as Comment 4-2. Photocopies of each comment document annotated with the identification numbers are provided at the end of this chapter.

It should be emphasized that not only have responses to EIS comments been addressed in this comments-responses section, as explained, but the text of the EIS itself has also been revised, as appropriate, to reflect the concerns expressed in the public comments.

Table 9-1, Index of Commentors, includes the identifying number assigned to each document, the name of the commentor, and the page numbers in this chapter on which the comment response and the document photocopy are presented. A reader who wishes to read the original comments may turn to the photocopies of the public comment documents provided at the end of this chapter.

**Table 9-1. Index of Commentors**

Document Number	Author	Organization	Page Number	
			Response	Document
1	Public Hearing Transcript - including comments from: Mr. Orville Keilman	Private Citizen	9-3	9-15
2	Mr. Orville Keilman	Private Citizen	9-3	9-24
3	Mr. David Carrothers	Alamo Area Council of Governments	9-3	9-25
4	Ms. Denise Francis	State of Texas, Office of the Governor	9-3	9-25
5	Ms. Mary Lively	Texas Natural Resource Conservation Commission	9-4	9-26
6	Mr. Glenn Sekavec	U.S. Department of the Interior, Office of Environmental Policy and Compliance	9-5	9-26
7	Mr. Mike Jansky	U.S. Environmental Protection Agency, Region 6	9-10	9-27
8	Mr. Al J. Notzen III	Alamo Area Council of Governments	9-11	9-28
9	Mr. David Frederick	U.S. Department of the Interior, Fish and Wildlife Service	9-11	9-28

## COMMENTS AND RESPONSES

### Document 1 - Public Hearing Transcript

1-1 Comment: I own property off of South Presa and would like to inform you of a situation on my property. Water has been running from Brooks AFB onto my property for many years. The water comes from the School of Aviation Medicine, and runs across Old Corpus Christi Road onto my property. I contacted Public Affairs to try to solve this situation. Several civil engineers from Brooks AFB met with me and a representative from then-Congressman's Frank Tejeda's office. One of the engineers said the water was from a spring near the road and then he changed and said it came from under a building at Brooks and nothing could be done about it. The water becomes stagnant in dry weather and I have seen children playing in it. Anything you can do to settle this situation would be greatly appreciated.

Response: This issue is not related to or a result of the proposed implementation of the BCBP. The comment has been forwarded to appropriate personnel at Brooks AFB and the City of San Antonio.

### Document 2 - Mr. Orville Keilman, Private Citizen

2-1 Comment: See Comment 1-1. This comment is the written version of the oral comment presented at the public hearing.

Response: See response to Comment 1-1.

### Document 3 - Mr. David Carrothers, Alamo Area Council of Governments

This document is a notification of a meeting of the Alamo Area Council of Governments, Economic Development and Environmental Review Committee, to review the application for the BCBP DEIS. This document did not include comments to the DEIS.

### Document 4 - Ms. Denise Francis, State of Texas, Office of the Governor

4-1 Comment: Staff recommends the environmental assessment address action that will be taken to prevent surface and groundwater contamination during and after construction.

Response: As discussed in Section 4.5.2.1.1, the property recipient and/or user would be required to obtain an NPDES permit during the construction phase of the project if the site is greater than 1 acre in size. Projects smaller than 1 acre in size still routinely implement best management practices that minimize erosion and sedimentation during construction. After construction, many industrial facilities (depending on the type of industry), regardless of the acreage occupied by the facility, are required to obtain a TPDES permit to address the potential for impacts to storm water runoff from the property. These regulations help

ensure that impacts to water quality from construction activity are minimized and that storm water runoff from industrial properties is controlled to prevent pollutant loading and monitored to ensure the effectiveness of that control. Such requirements help to reduce or prevent detrimental impacts to the quality of either surface water or groundwater. The text in Section 4.5.2.1.1 has been clarified regarding state versus federal permit requirements.

- 4-2 Comment: The Strategic Assessment Division has reviewed the above-referenced project for General Conformity impacts in accordance with 40 CFR Part 93 and Chapter 101.30 of the TNRCC General Rules. The proposed action is located in Bexar County, which is unclassified or in attainment of the National Ambient Air Quality Standard for all six criteria air pollutants. Therefore, general conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions pose no significant impact upon air quality standards. The minimal dust and particulate emissions can easily be controlled with standard dust mitigation techniques by the construction contractors.

Response: Comments noted.

#### **Document 5, Ms. Mary Lively, Texas Natural Resource Conservation Commission**

- 5-1 Comment: The staff does not anticipate significant long-term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits and regulations. However, it is recommended that the applicant take necessary steps to insure that best management practices are utilized to control runoff from construction sites to be utilized to prevent detrimental impact to surface and groundwater.

Response: See response to Comment 4-1.

- 5-2 Comment: It has been determined from a review of the information provided that an Application for TNRCC Approval of Floodplain Development Project need not be filed with TNRCC. Our records show that the community is a participant in the National Flood Insurance Program and as such has a Flood Hazard Prevention Ordinance/Court Order. Accordingly, care should be taken to ensure that the proposed construction takes into account the possible Flood Hazard Areas within the community's floodplains. Please notify the community floodplain administrator to ensure that all construction is in compliance with the community's Flood Hazard Prevention Ordinance/Court Order.

Response: Comment noted. Text has been added to Section 4.5.2.1.1 to indicate that the community floodplain administrator would be notified of development, in order to ensure that all construction is in compliance with the community's Flood Hazard Prevention Ordinance/Court Order.

- 5-3 Comment: The Strategic Assessment Division has reviewed the above-referenced project for General Conformity impacts in accordance with 40 CFR Part 93 and Chapter 101.30 of the TNRCC General Rules. The proposed action is located in Bexar County, which is unclassified or in attainment of the National Ambient Air Quality Standard for all six criteria air pollutants. Therefore, general conformity does not apply.

Although any demolition, construction, rehabilitation, or repair project will produce dust and particulate emissions, these actions pose no significant impact upon air quality standards. The minimal dust and particulate emissions can easily be controlled with standard dust mitigation techniques by the construction contractors.

Response: Comment noted.

**Document 6, Mr. Glenn Sekavec, U.S. Department of the Interior, Office of Environmental Policy and Compliance**

- 6-1 Comment: The analysis of cultural properties focused on those areas within the boundaries of the base but excluded adjacent historic properties. The project's "affected area" encompasses the four missions within the National Register Historic District and associated sites. This District contains two National Historic Landmarks as well – the "South Central San Antonio Community Plan" and the "Avenidas del Rio Business Corridor."

Although the bulk of the proposed development falls within the base proper, we are very concerned that the National Register district was not mentioned.

Response: The San Antonio Missions National Historical Park and acequias are mentioned in the DEIS in Section 3.5.6.2 as properties adjacent to Brooks AFB. The San Antonio Missions National Historical Park and acequias are also shown on Figures 3.2-6 and 3.5-5 in the DEIS.

As stated in the comment, the focus of the cultural resources analysis for this EIS includes areas within the base boundary. Potential environmental impacts to the off-base National Register Historic District and associated sites and the two National Historic Landmarks would be addressed under separate environmental analysis or documentation prepared to assess any actions directly affecting these areas.

Indirect and cumulative effects to off-base historic areas, such as the National Register Historic District and missions, were assessed and the text has been revised to more fully reflect the findings of the analysis. The text in Sections 3.2.2 and 3.5.6 has been expanded to include additional information regarding the San Antonio Missions National Historical Park and acequias. The text in Sections 4.2.2 and 4.5.6 has been expanded to more clearly address potential impacts to the San Antonio Missions National Historical Park and acequias due to potential

development associated with the BCBP. Specific types of revisions are provided in the responses to specific comments below.

- 6-2 Comment: It is important that development planned near any mission sites or their related areas take into consideration the proximity of commercial or residential development which could have a direct or indirect impact on the qualities for which the historic properties were added to the National Register.

Response: Development associated with the implementation of the BCBP would not likely affect the qualities for which the historic properties were added to the National Register. Section 3.2.2 describes the land use and community plans and zoning regulations. As stated in Section 4.2.2 of the DEIS, all development within Brooks AFB would be in accordance with city and community land use plans, which consider historic properties during the planning process and focus on strategies to enhance historic properties.

Also, as part of CoSA's request for proposal package, prospective BCBP developers must submit a Land Use and Urban Design Plan, which must "provide elements which encourage connectivity and leverage the study area's strengths, features, and opportunities, including the San Antonio River and the historic Missions." Thus, developers would be required to consider historic properties during the planning stage. The text in Section 4.2.2.1 has been expanded to include this information.

In addition, as stated in Section 3.2.2, CoSA has proposed a zoning ordinance that would create Viewshed Protection Districts. The San Antonio Missions National Historical Park would be protected by this ordinance and all development associated with the BCBP would be in compliance with this ordinance, should it be enacted. The text in Section 4.2.2.1 has been expanded to indicate that development associated with the BCBP would be in accordance with zoning ordinances that would protect the quality of the historic properties associated with the San Antonio Missions National Historical Park and no impacts are anticipated.

- 6-3 Comment: Development planned near any of the mission sites or their related areas should take into consideration traffic patterns, if the existing ones might be modified, causing an impact to the historic resources making up San Antonio Missions National Historical Park.

Response: By the end of the transportation analysis period (2020), traffic along South Presa Street between Henderson Court and the proposed south access point may increase enough to cause minor inconveniences during peak hours. These effects are considered minimal, however (see Section 4.2.3), and are not expected to have any effect on the historic resources within the adjacent San Antonio Missions National Historical Park or its environs. Existing traffic patterns along South Presa Street currently have no effect on the character or use of the Park and any increases expected from the Proposed Action or alternatives would not significantly alter that status. Long-term positive effects on the Park,

from increased use of the South Presa Street area, could result from implementation of both the Proposed Action and the Outgrant Alternative, however, by increasing awareness and use of the Park and its amenities. The text in Section 4.5.6.1.3 has been modified to reflect this information.

If traffic volumes increase as projected, additional lanes and intersection improvements may be necessary to maintain driving conditions. These off-base road improvements would be the responsibility of local government.

- 6-4 Comment: Proximity of development has the potential to alter water patterns and any new development might increase the potential for contamination of waterways. Both these factors could have a drastic effect on the historic acequia systems (irrigation ditches) related to Missions San Juan and Espada. These acequia systems date to the 1700s. One (the Espada acequia) has been in continual use since the 1700s. Local farmers and residents rely on the system for irrigation water. The park also has water rights for these systems.

Response: The concerns for alteration of water patterns (especially increased surface water runoff) and increased potential for contamination of surface water would be addressed during the development planning stages of the BCBP, in response to both state and local regulations. The CoSA would place restrictions on the allowable increases in impervious areas or would require implementation of storm water management actions. Such actions would minimize or control increases in surface water runoff from existing base boundaries. In addition, an NPDES permit will be required for construction activities and a TPDES permit will be required for any industrial activities during the post-construction period. Included in both permit applications would be an SWPPP that would establish measures to ensure that increased contamination is minimized or prevented. The discussion within Section 4.5.2.1.1 has been expanded to cover these requirements in greater detail.

- 6-5 Comment: Proximity of new development has the potential to change the carefully guarded viewsheds which exist with all the mission sites. Noise and air pollution would cause similar concerns. The National Historical Park relies on its visitors. Any proposed development in the proximity of the historic sites must take this into consideration.

Response: Under the BCBP, potential new development along the west base boundary, within the Park's viewshed, would be minimal. The northwest portion of the base is currently developed, with the exception of two small parcels of undeveloped open space that could be used for Mixed Use or Research and Development under Scenario A and undeveloped under Scenarios B and C. Any new construction in this area is not expected to be visible from National Park Service property. The central portion of the west boundary is open space associated with the golf course and the Berg's Mill Creek 100-year floodplain that exits along the base on the west boundary. This area is generally identified as Public/Open Space in all scenarios with no large-scale construction

expected. The south portion of the west base boundary, which is slated for Research and Development uses, is at a slightly lower elevation and is further east than the rest of the base boundary; therefore, new development in this area is not expected to negatively impact the Park's viewshed. This area is currently screened from the view of National Park Service properties by mature vegetation on National Park Service property as well as privately owned parcels. While multi-story buildings, if constructed in this area, might be visible from National Park Service property, this type of construction is unlikely given the identified land use, the amount of property available, and the type and layout of current development on the base. Sections 4.2.2 and 4.5.6 have been expanded to indicate that viewsheds at the San Antonio Missions National Historical Park are not expected to be impacted by the development associated with the BCBP.

Air quality has been analyzed in this EIS at a regional level. As stated in Section 4.5.3, implementation of the BCBP will not have a significant air quality impact on the region, including the San Antonio Missions National Historical Park.

Implementation of the BCBP is not anticipated to create a significant noise impact at the San Antonio Missions National Historical Park. The analysis presented in Section 4.5.4 indicates that surface traffic noise, which is the primary noise concern associated with the BCBP, would only result in an increase in noise levels of up to 3 decibels on any of the sensitive receptors analyzed. There would be no increase in noise at the sensitive receptor location identified along South Presa Drive (single-family homes). Therefore, it is likely that there would not be a noticeable noise increase at the San Antonio Missions National Historical Park or Mission San Juan, situated west of South Presa Drive. Higher cumulative surface traffic noise levels may result from other future actions in the region. The cumulative impacts discussion in Section 4.5.4 has been expanded to indicate that cumulative noise impacts could occur as a result of the implementation of the BCBP combined with the impacts of other projects in the region.

6-6 Comment: Lands associated with the San Juan acequia system are repeatedly referred to as "vacant lands," instead of properties that contain a culturally sensitive and historically significant resource. Further environmental documentation should acknowledge that Brooks AFB has a National Park as a neighbor and made reference to visitation, economic benefits of the Park, National significance, etc.

Response: Section 3.2.2.3 has been revised and expanded to include reference to open space, the remains of the historic acequia system, and the San Antonio Missions National Historical Park west of the base. In addition, Figure 3.2-6 has been revised to depict the acequia; the property associated with the San Antonio Missions National Historical Park was already shown on the figure in the DEIS. The Park boundary has also been added to Figure 3.5-5, Known and Potential Historic



Properties. Text regarding the four missions in the area has been added to Sections 3.2.2.3 and 3.5.6.2.

- 6-7 Comment: The potential cumulative effects of the proposed City Base project were not outlined in the DEIS. This includes the expansion of Stinson Airport near Mission San Juan to accommodate corporate jets and increased air traffic to that facility, as well as the potential for increased traffic on South Presa Street and the possibility that the road could be widened to four lanes (the park has lands on both sides of the road).

San Antonio Missions National Historical Park lands are only separated from Stinson Airport by approximately 1,500 feet, including the road). Encroachment on Park lands is of particular concern as it has the potential to significantly affect historic resources through increased pollution, noise levels, and vibration. If new parking lots were constructed on base, the potential increase of surface water runoff could severely overburden the historic acequia system, which is still actively used. The Park is in the process of buying houses and commercial properties in the area to eventually open the viewshed from Presa Street to parklands, including Mission San Juan. These purchases, and their potential to change local land use and the visual sensitivity, should also be incorporated into determination of cumulative impacts.

Response: A description of the Stinson Airport expansion is provided in Section 2.4, as are descriptions of other future actions in the region that could occur during the 20-year analysis period. A discussion of potential cumulative impacts, based on the implementation of the BCBP, is provided at the end of each resource section within Chapter 4.0. Widening of South Presa Street is one possible solution should future development increase traffic on South Presa Street to unacceptable levels. However, this future action, if needed, would be addressed within the context of CoSA planning and public works, as well as through application of NEPA by the National Park Service, should Park Service property be requested by the CoSA for right-of-way expansion. Potential increases in runoff are addressed in Section 4.5.2 and the lack of potential impact to Park Service property viewsheds due to the BCBP is addressed in Section 4.2.2.

- 6-8 Comment: San Antonio Missions National Historical Park could be an asset for drawing businesses. Businesses could promote the fact that the Park provides green space and hiking and biking opportunities, as well as the social, cultural, and historical aspects of a National Park unit. However, Chapter 3, Affected Environment, neglects the potential for impact of and to the historic resources associated with the Park. More emphasis is needed in acknowledging the Park's importance to the community and the Nation.

Response: See response to Comment 6-6.

**Document 7, Mr. Michael Jansky, U.S. Environmental Protection Agency, Region 6**

- 7-1 Comment: EPA classifies your Draft EIS and proposed action a “LO-2,” (i.e., EPA has “Lack of Objections to the preferred alternative. EPA requests additional information to strengthen the FEIS”. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions.

Response: Comment noted.

- 7-2 Comment: Chapter 2 of the DEIS discusses the fact that under the various land use scenarios, a certain square footage of existing facility space will be demolished within a specified time-frame. For each Scenario, please provide a location and description of the facility space which is planned for demolition or may be demolished. Please address in the FEIS.

Response: It is not known at the current time the exact facility space that may be demolished. Specific plans for demolition would be determined by the property recipients and/or users subsequent to the completion of this EIS. The text has been revised to reflect this information.

- 7-3 Comment: Section 2.4 of the DEIS indicates that the potable water consumption will decrease even though the population is expected to increase. Please provide an explanation within the text of the FEIS.

Response: As discussed in Sections 2.4, 4.2.4.1, and 4.5.2.1.1, Brooks AFB has signed an agreement with SAWS and CPS to install a recycled, nonpotable water distribution system that will support industrial uses and irrigation system requirements, including golf course irrigation. This system could decrease the base’s potable water consumption by as much as 50 percent. Therefore, even though the population is expected to increase, overall potable water consumption would decrease. The text in Section 2.4 has been clarified to indicate that the potable water decrease is a result of use of recycled water instead of potable water. The text has also been revised to indicate that the recycled water system will be operational in summer 2001.

- 7-4 Comment: It would be helpful if the various land use categories shown in Figure 3.2-5 of the DEIS could be defined. Please address in the FEIS.

Response: Land use categories shown in Figure 3.2-5 are defined in Table 3.2-1. Within this table, typical activities and types of facilities included in each land use category are listed. No revisions have been made to the EIS.

- 7-5 Comment: Section 3.4.2.1 of the DEIS indicates that “State hazardous waste programs approved under the Resource Conservation and Recovery Act (RCRA) operate in lieu of federal rules.” The FEIS should clarify that the State authorized programs do not operate in lieu of federal

rules, but are authorized to administer the federal rules. Furthermore, State authorized programs, must be equally or more stringent than the federal regulations. Please explain in the FEIS.

Response: The text has been revised in Section 3.4.2.1 to reflect the information provided in the comment.

- 7-6 Comment: In Section 3.2.2, page 3-4, the land use analysis did not include information on land ownership and what potential effects might occur between sale in fee simple and leasehold. Such consideration might be helpful since the development initiative is a joint proposal by the U.S. Air Force and the City of San Antonio. Please address in the FEIS.

Response: It is anticipated that, under either a lease or fee simple transfer, land uses would be similar. Land ownership would not affect the proposed development of Brooks AFB. Under either the Proposed Action (transfer) or the Outgrant Alternative (lease), the property is expected to be developed in accordance with the land use scenarios described in Section 2.3. The land use of the property would be similar to existing conditions. Under the Proposed Action, the property would be transferred, and CoSA would maintain control of future development through its planning and zoning authority. Under the Outgrant Alternative, the property would be leased, and the Air Force would maintain continuing control and responsibility for the property. Any differences in impacts under the Proposed Action and Outgrant Alternative resulting from property ownership have been addressed, when necessary, within the appropriate resource sections in Chapter 4.0. Both CoSA and the Air Force have participated in development of the land use scenarios. No revisions have been made to the EIS.

#### **Document 8 – Mr. Al J. Notzon III, Alamo Area Council of Governments**

This document is a notification that the Alamo Area Council of Government has recommended a consensus to proceed with the Brooks City Base Project EIS.

#### **Document 9 – Mr. David Frederick, U.S. Department of the Interior, Fish and Wildlife Service**

- 9-1 Comment: In a letter dated February 23, 1999 to Mr. Dale Clark regarding the City Base Concept at Brooks AFB, we expressed our concern that the combined current level of water withdrawal for all consumers from the aquifer adversely affects aquifer-dependent species located at Comal and San Marcos springs and in the aquifer during low flows. Brooks AFB may not directly pump necessary water directly from the aquifer, however, it does contribute to the total water pumped by SAWS. We also expressed our concern that SAWS does not have an incidental take permit to cover take of Edwards Aquifer dependent species that could result from this groundwater withdrawal.

The Edwards Aquifer Authority has issued new proposed permits that outline the amount of water that will be allowed by each pumper of the

Edwards Aquifer. However, the new proposed permits do not reduce pumping to 450,000 ac/ft/yr as required by legislature nor in alignment to what the Service believes is necessary to protect spring flows and listed species. Therefore, it is the responsibility of Brooks AFB, even though they get their water from SAWS, to address the effects of the Edwards Aquifer water withdrawals in the EIS and to advise us as to how Brooks will limit their own use as well as limit water use by the private entities they will transfer or lease their facilities to.

Response: As addressed in Section 4.5.5.1.1 of the EIS, the withdrawal of water from the Edwards Aquifer is known to impact springflow of the Comal and San Marcos springs, although the relationship between specific withdrawal and springflow has not been determined. The Edwards Aquifer Act vested the Edwards Aquifer Authority with the responsibility to “manage, conserve, preserve, and protect the aquifer.” As part of this responsibility, the Act gave the Authority the power to regulate pumping from the aquifer. The SAWS, from whom Brooks AFB obtains its water supply, is one of the pumpers subject to these pumping restrictions. As evidenced in numerous recent news reports, SAWS is actively seeking alternative non-Aquifer sources of water. In addition, SAWS supports water conservation programs and is implementing a large-scale recycled water project to reduce the use of potable Edwards Aquifer water for irrigation and certain industrial uses. Clearly, the Authority and SAWS are working toward solutions to reduce the reliance of the region and the city of San Antonio on the Edwards Aquifer.

Under the Brooks City Base Proposed Action, the property at Brooks AFB would move out of federal ownership and come under the jurisdiction of the CoSA. SAWS would still be the water supplier and the regional solutions implemented by SAWS and the Edwards Aquifer Authority would apply to Brooks City Base water users in the same manner that they apply to users throughout the SAWS service area. Actual Air Force potable water usage is expected to decrease due to reductions in personnel under the City Base Project and, when coupled with our current effort to connect to the SAWS recycled water project, we will have significantly reduced our potable water consumption. SAWS is also planning to bring additional sources of water on line within the twenty-year timeframe considered in the EIS. While the Air Force has and will continue to support water conservation efforts at Brooks AFB, it is only one of hundreds of thousands of SAWS customers. Potential consumption under Scenario C in 2020, the highest estimated City Base projection, is 1,792 acre-ft per year, which would amount to approximately 0.4 percent of the 450,000 acre-feet per year Edwards Aquifer cap. Because the Brooks City Base project represents a miniscule part of regional water consumption, any additional restrictions the Air Force might place on the property transfer would have an immeasurably small effect on the Edwards Aquifer or the endangered or threatened species that rely on it. Therefore, the Air Force has no plans to regulate water use by the city of San Antonio, its successors, or assigns, or those that the city permits to use the property. The solution

for limiting Edwards Aquifer water withdrawals seems to lie with the Authority who regulates these withdrawals and pumpers, such as SAWS, who withdraw water from the aquifer. Attempting to put specific limits on future water use by customers in one section of the City may indeed limit water use in that area, but it most assuredly would also restrict development in that location while encouraging it elsewhere due to the lack of such additional constraints.

- 9-2 Comment: Brooks AFB also maintains and executes a Water Conservation Plan that conforms to the City of San Antonio's Aquifer Management Plan. The Service has in the past informed the City of San Antonio and the Edwards Aquifer Authority, that although a step in the right direction toward regulation of aquifer use, the Service believes that the rules are not adequate and need to be strengthened to assure necessary flows for listed species at Comal and San Marcos Springs. We recommend a drought plan similar to Fort Sam Houston's and Lackland, Randolph and Kelly AFBs be implemented at Brooks AFB.

Response: The Air Force will work with our partners to continue implementation of best management practices to reduce requirements for Edwards Aquifer water. Brooks AFB has implemented water conservation measures such as the use of shower flow restrictors, reduced water usage in toilets, and through the implementation of a drought management plan. Since 1996, Brooks AFB has reduced water consumption by over 16 percent. The Air Force will encourage property recipients to continue such best management practices and will cooperate with future property owners in their efforts to conserve water usage.

- 9-3 Comment: We are aware that reuse is an effort to reduce dependency on the aquifer. However, data presented in the EIS clearly show a steady increase in future demands and indicate that reuse water will help reduce the demands on the aquifer. It is the Service's concern that there may be a general perception that by providing for part of the water needs through a reuse project, more will be made available for potable users. The ultimate goal is to sustain the region and reduce the negative environmental effects of continued total reliance on the aquifer. Therefore, reduction by reuse should be used as one of several alternative water sources that would result in a permanent **reduction** from the current amount of potable water pumped from the aquifer. Water quality is also of concern. Appropriate treatment levels would also need to be analyzed to protect downstream users.

The Service is also concerned about the potential adverse impacts to the streams and estuaries from reclaiming/reusing effluents and other return flows. During droughts, some stream segments and the estuaries are expected to be sustained in large part by such return flows. We recommend, that minimum limits be placed on return flows currently permitted to enter ecologically unique and vulnerable stream segments and estuaries.

Response: Although potential future development of Brooks AFB property by others may drive additional demands for water, actual Air Force use of potable water at the base has decreased due to conservation programs as described elsewhere. With connection to the recycled water project, current potable water usage at the base is expected to be reduced by as much as 50 percent.

We understand your concern with regard to the streamflows affected by the recycled water project. Entities constructing and operating the system must ensure that discharges are in compliance with all permit conditions set by the TNRCC. An analysis of the ability of return flows to sustain streams during drought conditions throughout the South Texas region is outside the range of this analysis or the decisions to be supported by this EIS. Brooks AFB is one of hundreds of thousands of users of Edwards Aquifer water. Analyzing impacts on downstream uses in the region is the responsibility of the water supplier rather than its customers.

9-4 Comment: In our February 23, 1999, letter the Service also recommended pursuing water conservation measures such as low flow toilets and shower heads and xeriscaping be used if new areas of housing were to be associated with the base.

Response: See response to Comment 9-2.

Document 1

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

.....

PUBLIC HEARING MEETING OF  
ENVIRONMENTAL IMPACT STATEMENT  
FOR  
BROOKS CITY BASE PROJECT  
OCTOBER 25, 2000  
SLATTERY HALL

.....

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

Document 1

2

1 COLONEL MICHAEL: Good evening, ladies and  
2 gentlemen. I'd like to welcome you to the public hearing on the  
3 draft environmental impact statement for the Brooks City Base  
4 Project here at Brooks Air Force Base, Texas. My name is  
5 Colonel Gregory Michael and I will be the presiding officer for  
6 tonight's meeting.  
7  
8 This hearing is being held in accordance with the  
9 provisions of the National Environmental Policy Act and  
10 implementing regulations. The Act requires that federal  
11 agencies analyze the potential environmental impacts of their  
12 proposed actions and consider the results of their decision  
13 making.  
14  
15 The purpose of tonight's hearing is to receive  
16 your comments, suggestions, and criticisms of the draft  
17 environmental impact statement. Those of you who have not had  
18 an opportunity to review the draft environmental impact  
19 statement may want to read the summary of the major findings of  
20 the EIS -- again, that's the abbreviated term for the  
21 environmental impact statement -- in the handout available at  
22 the door. Those findings will also be addressed by panel  
23 members in their presentations this evening.  
24  
25 Before I introduce the members of the public  
hearing panel, let me explain my role in this evening's meeting.  
I am a military judge, attachment to Boeing Air Force Base, and  
I serve as the chief reserve trial judge of the Air Force. My

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

Document 1

3

1 primary duty is a trial judge for the United States Air Force  
2 trying court martials throughout the country. Tonight, however,  
3 my function is to ensure we have a fair and orderly hearing and  
4 that all who wish to speak have an opportunity to do so. I am  
5 not here as a legal expert on the environmental impact  
6 statement, nor do I act as a legal advisor to the Air Force  
7 representatives who will be making representations.  
8  
9 Now, I'd like to introduce the members of the  
10 public hearing panel. To my immediate right is  
11 Dr. Brendan Godfrey, the Deputy Director of the 311th Human  
12 Systems Wing, which is the host organization at Brooks Air Force  
13 Base. Dr. Godfrey will be speaking as the proponent for the  
14 City Base Project. He will provide an overview of the City Base  
15 Project.  
16  
17 To Dr. Godfrey's immediate right, is Mr. Dale  
18 Clark, from the Environmental Analysis Division of the Air Force  
19 Center for Environmental Excellence, a tenant organization  
20 located at the Brooks Air Force Base. Mr. Clark will be  
21 briefing you on the environmental impact analysis process and  
22 summarizing the results reported in the draft EIS. Also seated  
23 at the table are Mr. Manuel Longoria, Economic Development  
24 Department for the City of San Antonio, and Mr. Dick Grant, Vice  
25 Chair of the Brooks Advisory Board, appointed by the City  
Council to advise the City on matters regarding the City Base  
Project.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

Document 1

4

1 Following the presentations, we may have a short  
2 break. Due to the number of people, I doubt that we will, and  
3 we will go right into the public discussion.  
4  
5 I'd like to make some other introductions of  
6 people here with us tonight who are responsible for the  
7 environmental management at Brooks Air Force Base. These  
8 include Mr. Hamid Kamalpour, who is in charge of natural and  
9 cultural resources protection at Brooks, and Mr. Jason Gorden,  
10 who handles environmental restoration for the base. These folks  
11 have responsibility for environmental issues at Brooks,  
12 including the environmental impact statement we are going to be  
13 discussing this evening.  
14  
15 Tonight's hearing is designed to give you an  
16 opportunity to comment on the adequacy of the environmental  
17 impact statement. Keep in mind that the environmental impact  
18 statement is simply intended to ensure that future decision  
19 makers will be fully apprised of the environmental impacts  
20 associated with the various alternatives before they decide on a  
21 course of action. Consequently, comments tonight on issues  
22 unrelated to the environmental impact statement are really  
23 beyond the scope of this hearing and will not be addressed.  
24  
25 If you don't feel comfortable standing up tonight  
and making a statement, you have until November 20th -- I  
repeat -- November 20th to submit a copy of your statement for  
consideration prior to publishing the final EIS. The Air Force

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

5

1 will continue to accept comments after November 20th, but the  
2 Air Force cannot guarantee the late comments will be included in  
3 the final environmental impact statement.

4 Special sheets are provided at the registration  
5 area for your use in providing these comments. The address  
6 shown on the slide is also contained in the brochure and on the  
7 comment sheets you received as you entered the hall. Also, even  
8 if you make comments this evening, you still have until  
9 November 20th to submit additional written comments to the  
10 address shown on the slide and on the bottom of the comment  
11 sheets. All statements, whether made verbally or submitted in  
12 writing either tonight or later, will be considered to the same  
13 extent. Again, please don't be shy or hesitate to make a  
14 statement. I want to ensure that all who wish to be speak have  
15 a fair chance to be heard.

16 We have a court reporter with us tonight, Darlene  
17 Zuehl, who will take down verbatim everything that is said  
18 tonight. The verbatim record will become part of the final EIS.  
19 The court reporter will be able to make a complete record only  
20 if she can hear and understand what you say. With that in mind,  
21 please help me by observing the following ground rules.

22 First, please speak only after I recognize you  
23 and please address your remarks to me. If you have a written  
24 statement, you may place it on the table next to the podium  
25 right here where the court reporter is or at the table at the

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

6

1 rear where Jennifer is located and you may read it, if you wish,  
2 or leave it, whichever you prefer.

3 Second, please speak clearly and slowly into the  
4 microphone, starting with your name, address and the capacity in  
5 which you appear -- for example, a public official, a designated  
6 representative of a group or a concerned citizen. This will  
7 help our court reporter prepare a professional transcript.

8 Third, each person will be recognized for five  
9 minutes, and that includes public officials, designated  
10 spokespersons and private individuals. If you have more  
11 comments than that, than you will be able to present in the five  
12 minutes, please prioritize your comments to ensure that the most  
13 important are addressed first.

14 And, finally, if you have any cellular  
15 telephones, I will ask that they be turned off. I don't want  
16 those interrupting people while they are speaking. And,  
17 finally, please do not speak while another person is speaking.  
18 Only one person will be recognized at a time.

19 One thing I can't stress enough, many of you here  
20 may have information regarding environmental inputs unknown to  
21 us. We are very interested in hearing and analyzing all  
22 potential environmental impacts of the Proposed Action and its  
23 alternatives. You may have experience that comes from living in  
24 this area, so the second part of today's communication, the part  
25 that flows from you to us, is important. Don't hesitate to be

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

7

1 part of the proceedings.

2 Now, it's my pleasure to introduce  
3 Dr. Brendan Godfrey, who will describe the Brooks City Base  
4 Project. Dr. Godfrey.

5 DR. GODFREY: Thank you, sir. I want to -- I  
6 wanted to join with Colonel Michael in welcoming all of you  
7 here. Brooks City Base Project has been publicized widely in  
8 San Antonio and so in the interest of time, I will only be  
9 providing a brief summary of it. However, I will be able, both  
10 during the break and after the meeting, if anyone wants to get  
11 additional details. Next slide, please.

12 What I will be covering in the next 15 minutes is  
13 a brief description of the Brooks Air Force Base itself, our  
14 strategy and approach to the Brooks City Base Project, the kind  
15 of partnerships that have developed already and, finally, the  
16 nature of the process that we have to go through to get to the  
17 Brooks City Based Project, how to make it actually happen and  
18 the time line that is involved. So in the 10 or so charts, we  
19 will be giving you a broad picture of where we are going and  
20 what we are doing. Next chart, please.

21 To begin with, Brooks Air Force Base is the  
22 Air Force Center of Excellence for human environmental products  
23 and services. We keep people healthy and we look after the  
24 environment from the point of view of making sure that the Air  
25 Force is a good steward of the environment.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

8

1 In a nutshell, we do cutting-edge research that  
2 relates to human performance and safety, we do engineering  
3 design, we buy the products and put them into the field to keep  
4 our people safe and healthy, we maintain that equipment in the  
5 field, we train people -- 7,000 people a year -- in how to  
6 utilize that equipment, how to identify problems and solve them,  
7 we monitor the health of people worldwide, we perform disaster  
8 response activities in cases where outbreaks of disease may  
9 occur, throughout the world in fact, and last, but not least, we  
10 provide a variety of environmental and health services. Next  
11 chart.

12 Although we have a number of unique pieces of  
13 equipment on Brooks Air Force Base, our real strength, of  
14 course, is our people. We have a mix of scientists, engineers,  
15 medical personnel, skilled technicians, and craftspeople, some  
16 8-, 900 people with specialized degrees in either science or  
17 medicine or business management. In all, there are 3,500 people  
18 on Brooks Air Force Base, a mix of civilians, some officers and  
19 enlisted personnel and also both the contractors here. The City  
20 has estimated that the economic impact of Brooks Air Force and  
21 then when you fund the City it is approximately \$500 million.  
22 Next chart, please.

23 What is, then, the Brooks City Base vision? What  
24 do we actually hope to do? Our goal, simply stated, is to  
25 transfer the ownership of Brooks Air Force Base to the City or a

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525



**Document 1**

9  
1 private developer in exchange for services in the metro  
2 development of revenue. Under those circumstances, Brooks would  
3 become a high-tech business park. Unlike Kelly Air Force Base,  
4 and I need to emphasize that strongly, the Air Force is not  
5 planning to leave Brooks. We plan to remain and in fact do a  
6 better job and a stronger mission because we will be  
7 strengthened by partnerships with companies and universities,  
8 and I will give you just a few samples of that later on.

9 Municipal services then will be provided by the  
10 City in the private sector, so we will get out of the business  
11 of acting like a small town, allow the folks who know how to run  
12 cities to run our city, and we focus on supporting the war  
13 fighter, which is our major responsibility.

14 Furthermore, we would be hoping, as the City  
15 does, that the private sector will take advantage of these  
16 opportunities to stimulate economic development on previously  
17 vacant land in and around Brooks Air Force Base and to also  
18 share with us the equipment that we have available and the  
19 intellectual property and expertise. So this is a joint mission  
20 then of the City of San Antonio, the San Antonio community, and  
21 Brooks Air Force Base. Next chart, please.

22 We could not do the kinds of things that I am  
23 talking about unless we had specific legislative approval, and  
24 we have it. Just a few months ago Congress passed legislation  
25 which allows us to do the following things. It empowers the

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

10  
1 Secretary of the Air Force to sell or lease Air Force property,  
2 specifying the amount and form of compensation so long as it is  
3 fair market value and then to leaseback property for Air Force  
4 use, and it allows us exemptions from a variety of federal laws  
5 which thereby enable us to do this in a timely fashion. It  
6 allows us to seek to -- pay based services based on debt value,  
7 including the purchase of municipal services from the City of  
8 San Antonio. Not all municipal services but most of them. We  
9 do not purchase police and fire or schools.

10 It also establishes a base revolving fund so that  
11 any income we may receive, either from the City or from other  
12 partners, is not sent back to Washington but rather is retained  
13 here in San Antonio for the enhancement of Brooks. This  
14 legislation actually becomes effective 30 days after we submit a  
15 master plan to Congress, and we plan to do that in March of 2001  
16 and those authorities persist until 2005. All right. And,  
17 again, I want to emphasize that it doesn't mean that all the  
18 deals are undone in 2005, it simply means that without  
19 additional authority through Congress, we cannot cut new deals.  
20 Next chart, please.

21 Okay. So what are the mechanics on the top  
22 level? First, Brooks Air Force Base, the City -- conveys to the  
23 City of San Antonio all 1,310 acres of the base, two square  
24 miles, and all the facilities on the base. The property then  
25 becomes part of the City of San Antonio, just like the land we

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

11  
1 are standing on right here is part of the City of San Antonio.  
2 Then the Air Force leases back the land and facilities that we  
3 need to continue to do our mission, and this will be most of the  
4 buildings but not a lot of the land. We then will look to the  
5 City of San Antonio for services and infrastructure support and  
6 upgrading of the facilities in order to accommodate economic  
7 development, and if there are revenues down the road from this,  
8 then the City and the Air Force will share equally in that; but,  
9 again, our primary goal is not to produce revenues.

10 Our primary goal is to enhance the performance of  
11 the Brooks mission, to cut costs for the Air Force, to enhance  
12 economic development in the City of San Antonio, to contribute  
13 to the vision of the City of becoming a high-tech community,  
14 especially in the area biotechnology. Next chart.

15 All right. This is a schematic map of Brooks Air  
16 Force Base. The areas in yellow are areas that are largely  
17 built up. You will notice they are primarily in the northwest  
18 corner, bounded by the Old Corpus Christi Highway and Southwest  
19 Military Highway, and then there is the substantial amount of  
20 vacant, more or less, virgin land abounded on the east side by  
21 Goliad Street, on the south by the Brooks side housing  
22 development and by the property owned by the Texas A & M  
23 University System. There is approximately two million square  
24 feet of buildings on the base, and as I have already remarked,  
25 an excellent workforce and some 1,300 acres of land all told.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

12  
1 Approximately half of that land is available for economic  
2 development. Next chart.

3 I want to emphasize strongly that the Brooks City  
4 Base Project would not be possible if it were not for the  
5 cooperation and support of the San Antonio community. The whole  
6 idea of the Brooks City Base Project, of conveying property to  
7 the community then leasing back what we need and using the rest  
8 of it for economic development and mutual benefit, is not an  
9 idea that was hatched within the Air Force. It is a concept  
10 that was developed by our college in the San Antonio community,  
11 some of whom you see right here in front of you.

12 What the City of San Antonio has contributed, by  
13 organizing task forces which, as I just remarked, developed the  
14 Brooks City Base Project; a Brooks Advisory Board, of which  
15 Mr. Grant is the Vice Chair, that links together interested  
16 parties in the City, the community, and the base; a joint  
17 criteria document, which describes our overall measures of  
18 success which I will be sharing with you shortly; and, finally,  
19 the Economic Development Department represented by Mr. Longoria  
20 which has been working with us hand and glove in developing the  
21 detailed strategy for the conveyance of these.

22 We would not be where we are also without the  
23 strong support of the San Antonio congressional delegation,  
24 particularly our local congressman, Congressman Rodriguez; and  
25 last, but definitely not least, the Chambers of Commerce has

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

13

1 worked closely with us carrying out the Joint Vision Conference  
2 which laid out the overall strategy for where we wanted to go,  
3 jointly with the community, and also making Brooks Air Force  
4 Base part of the Avenida business zone and a variety of other  
5 initiatives for strengthening the economic vitality of southeast  
6 San Antonio. Next chart.

7 Now, let me share with you two examples of  
8 several that we are already pursuing in order to strengthen both  
9 the capabilities of Brooks and the capabilities of San Antonio  
10 and San Antonio and South Texas. Brooks Air Force Base has  
11 entered into a partnership with a number of universities,  
12 including the University of Texas Health Science Center,  
13 University of Texas San Antonio and Palo Alto College here in  
14 San Antonio and a variety of other state institutions in order  
15 to focus our combined capabilities on addressing health issues  
16 in South Texas, particularly the Texas/Mexico border region.

17 What comes of this? Enhanced Air Force,  
18 worldwide, environmental support because the problems that are  
19 confronting the Texas/Mexico border are the same kinds of  
20 problems that we confront when we go to many third-world  
21 countries around the world: Education training, research and  
22 services developed for the border, greater capabilities and  
23 reduced cost for partners, opportunities for private sector  
24 participation.

25 Our kickoff activity, which occurred about nine

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

14

1 months ago, was a well attended border health symposium.  
2 Keynote speaker was Senator Hutchison. Senator Rodriguez also  
3 spoke and many other state and federal community leaders and  
4 they focused very clearly on the importance of all of us working  
5 together to address key health issues in South Texas. A variety  
6 of other initiatives are being planned and will be presented to  
7 the state legislature and to various federal agencies, including  
8 the Environmental Protection Agency, within the next few months.  
9 So this is one of the new initiatives that has grown out of the  
10 planning for the Brooks City Based Project. Next chart.

11 Still another area is the growing relationship  
12 between the Alamo Community College System and Brooks Air Force  
13 Base and, in particular, with Palo Alto Community College, which  
14 is, I am sure you know, only about five miles from here west on  
15 410. For two years now, they have utilized facilities, that we  
16 have ceased using, to carry out small animal veterinary training  
17 as part of their Veterinary Technology Program. In negotiations  
18 we have just completed, they will be moving their large animal  
19 Veterinary Technology Training Program to Brooks Air Force Base  
20 and, in addition to that, their new veterinary technicians will  
21 have the opportunity of hands-on training here at Brooks by  
22 running a veterinary clinic here.

23 In addition to that, we are exploring a wide  
24 variety of additional interactions, including allowing the  
25 partnership involving the Texas A & M University and Palo Alto

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

15

1 College to utilize some space here at Brooks Air Force Base for  
2 teaching of classes, conducting of business learning. So we are  
3 seeking to build on the robust relationship we already have with  
4 Palo Alto College to perhaps build an even stronger three-way  
5 partnership with Palo Alto and Texas A & M University. And  
6 these are just two of numerous other initiatives that we are  
7 carrying out to reach out to the San Antonio community and to  
8 develop a variety of partnerships that are mutually beneficial.  
9 Next chart, please.

10 So what are now the detailed steps that we have  
11 to carry out in order to accomplish the Brooks City Base  
12 Project? First and foremost, the community needs to plan to  
13 actually take over the base, to assume the myriad of  
14 responsibilities that the base is carrying on right now, to  
15 conduct environmental due diligence. And Mr. Longoria has been  
16 central in carrying out those activities. At the same time, the  
17 Air Force needs to do the planning for the transfer of  
18 leaseback, and we are well along with that. Then we need to  
19 carry out three environmental initiatives. The first of which  
20 is the environmental impact analysis, and the meeting we have  
21 here is a part of that. Next chart.

22 In addition to that, we would be carrying out an  
23 environmental baseline survey, actually updating one that  
24 already exists, to clearly document the environmental conditions  
25 of Brooks Air Force Base. We will then be completing our

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

16

1 environmental cleanup and our compliance programs in order to  
2 accommodate the conveyance. We expect those activities to be  
3 largely complete later next year. Then we need to actually lay  
4 out the mechanical process, all the steps that are involved in  
5 transferring a whole series of initiatives from the City -- from  
6 the base to the City, such as infrastructure services, utilities  
7 management, legal jurisdiction. So there is a whole series of  
8 small steps that have to be carried out after we have actually  
9 done the main conveyance, and we are developing the plans for  
10 that now. We will have those plans completed by next summer.

11 Last, but not least, people are always impacted  
12 when any major change takes place and so we are working jointly  
13 with the City and the state and with the local unions to make  
14 sure that we take good care of people who are impacted and  
15 minimize adverse actions. Next chart.

16 I mentioned to you earlier that several months  
17 ago we had laid out a series of criteria, jointly between the  
18 City and Brooks, so that we would know, after all is said and  
19 done, have we done what was right? Have we, in fact,  
20 accomplished what we set out to do? I don't plan to go through  
21 all of these in detail, but merely to encapsulate by saying we  
22 agree jointly that our goals are to improve the initiative, in  
23 fact, of this -- of Brooks Air Force Base, to support the Brooks  
24 people, and to promote economic development. And we have, in  
25 fact, indeed a detailed checklist which we will be using to

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

17

1 evaluate all the initiatives that we carry out under the Brooks  
2 City Base Project to ensure that they be described herein.

3 My last chart shows you the time line. We have  
4 been negotiating diligently with the City of San Antonio, and in  
5 fact we had meetings just this afternoon on that subject, to  
6 establish a nonbinding agreement between the City and the Air  
7 Force that lays out the deal, if you will, between the City and  
8 the Air Force, so that we have a basis for developing the legal  
9 documents. That nonbinding agreement we expect to have  
10 finalized, in draft form, Friday, and we expect to have it  
11 signed by the end of this calendar year.

12 Environmental studies, as I have already  
13 mentioned, are well under way and we hope to have them completed  
14 by June of 2001. Then, shortly thereafter, signing the  
15 documents necessary for the actual conveyance of property to  
16 Brooks from the City to the Air Force in the leaseback, and we  
17 expect to have that done by October of 2001, and then all the  
18 steps that are involved in the actual transfer of  
19 responsibilities will take place in the year thereafter. That  
20 is my briefing. Thank you very much.

21 COLONEL MICHAEL: Thank you very much,  
22 Dr. Godfrey. Now I would like to present Mr. Dale Clark who  
23 will brief us on the environmental process. Mr. Clark.

24 MR. CLARK: Thank you, Colonel Michael. I'm an  
25 environmental program manager at the Air Force Center for

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

18

1 Environmental Excellence which is here locally at Brooks Air  
2 Force Base, and our organization is conducting the environmental  
3 analysis process for the Brooks City Base Project. Tonight, I'm  
4 going to give you some background on environmental analysis, in  
5 general, and then talk about the results shown in the draft EIS,  
6 in particular.

7 The National Environmental Policy Act, or NEPA,  
8 requires that federal agencies consider the environmental  
9 consequences of their proposed actions and their decision-making  
10 process. The possible decisions to implement City Base is an  
11 action that requires this consideration, and we've prepared an  
12 environmental impact, or EIS, to analyze those potential  
13 environmental consequences.

14 NEPA also requires that the public be included in  
15 this decision-making process. We published a notice of intent  
16 to prepare the EIS in the Federal Register on June 16th of this  
17 year and conducted our scoping meeting -- or conducted public  
18 scoping, rather, during June, July and August. The notice  
19 described the proposed City Base Project and requested public  
20 input on the issues to be addressed.

21 A public scoping meeting was held here in  
22 Slattery Hall on July 12th to explain the EIS process and to  
23 gather public comment. The scoping process helped guide  
24 preparation of the draft EIS. The draft EIS was made available  
25 for public review and comment in September. Tonight's public

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

19

1 hearing is a formal meeting in which we review the results  
2 presented in the draft EIS and receive public comments on the  
3 document.

4 Any comments made on the draft EIS this evening,  
5 whether verbal or written, will be part of the public record and  
6 will be considered as we prepare the final EIS. As I have  
7 already mentioned, written comments will be accepted through the  
8 end of the public comment period which lasts through  
9 November 20th of this year. Written comments should be  
10 addressed to -- should be directed, rather, to the address shown  
11 on the slide. This address is also on the handout sheets and  
12 the brochure that you were provided with this evening.

13 After the end of the public comment period, all  
14 comments will be reviewed, responses will be prepared, and the  
15 EIS may be revised, if necessary. All comments received will be  
16 printed in the final EIS, which is scheduled for publication in  
17 of February 2001. Following the release of the final EIS and a  
18 required 30-day waiting period, the Air Force may publish its  
19 record of decision, indicating if and how it will implement the  
20 Brooks City Base Project.

21 Now, the three major portions of the  
22 environmental impact statement are the description of  
23 alternatives, including the Proposed Action, which we include as  
24 Chapter 2; the description of the affected environment,  
25 presented in Chapter 3; and the environmental consequences of

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

20

1 impacts of implementing the alternatives, which we discuss in  
2 Chapter 4.

3 As I already mentioned, the Proposed Action is to  
4 convey all or portions of the approximately 1,310 acres of base  
5 real property, including facilities and infrastructure to the  
6 City of San Antonio or other public or private entities. The  
7 City or other entity could then develop the transferred portions  
8 of the base in a manner consistent with Brooks Air Force Base  
9 missions and operations.

10 Transferred facilities necessary to continue the  
11 Air Force mission would be leased back on an as-needed basis.  
12 Operating leases of property and facilities would be granted to  
13 the Air Force for up to 20 years or longer, depending on the  
14 results of negotiations.

15 The transfer/leaseback action would allow the Air  
16 Force to reduce the operating and maintenance costs associated  
17 with owning the property while still allowing continuing use of  
18 facilities and property necessary to support its missions. Air  
19 Force organizations are, in general, expected to remain within  
20 the primary facilities they currently occupy, at least within  
21 the short term.

22 Under the Outgrant Alternative, which is the  
23 alternative action, the property could outgrant to the City or  
24 other public or private entity. For the purposes of the EIS,  
25 outgrants may include leases, licenses, permits, or

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

21

1 rights-of-entry. Under this alternative, the Air Force would  
2 maintain continuing control and responsibility for the property  
3 and would have a continuing responsibility to conduct NEPA  
4 analysis as necessary as individual outgrants are negotiated.

5 In accordance with NEPA, we also look at the  
6 No-Action Alternative, under which the City Base Project would  
7 not be implemented and base operations would continue under  
8 status quo.

9 Although the Air Force's primary decisions  
10 regarding the City Base Project, from the NEPA standpoint, are  
11 related to transfer or outgrant of Brooks property, we expect  
12 these actions, themselves, to have few, if any, direct  
13 environmental effects. However, future use of base property is  
14 expected to create indirect environmental effects. Therefore,  
15 in the draft EIS, we analyzed reasonable future land use  
16 descriptions or what we called "scenarios" to determine the  
17 range of environmental effects that may occur if the City Base  
18 Project is implemented. Three land use scenarios, which we  
19 termed A, B and C, were developed for consideration in the  
20 impact analysis for the Proposed Action and the Outgrant  
21 Alternative.

22 The land use scenarios we considered for the  
23 impact analysis are intended to depict the reasonable range of  
24 land uses that may occur on Brooks Air Force Base over the next  
25 20 years under the auspices of the Brooks City Base Project.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

22

1 They are not proposals for future development, but they do  
2 represent differing combinations of land use types that may  
3 occur on Brooks if City Base is implemented. These land uses  
4 were developed by the Air Force with input from various city  
5 agencies and community representatives. We anticipate that the  
6 property at Brooks Air Force Base would fall under City of  
7 San Antonio zoning and planning authorities once it is  
8 transferred out of federal ownership.

9 Each of the land use scenarios we are considering  
10 has a similar mix of land uses, but with varying acreages and  
11 locations for the land use types. The centerpiece for each of  
12 the scenarios is land you've shown in light -- shown in light  
13 blue on these slides and termed Research and Development Park.  
14 This land use is intended to capitalize on the existing research  
15 and development staff and infrastructure already in place at  
16 Brooks.

17 As you can see, under Scenario A, this land use  
18 includes the base's existing research and development facilities  
19 in the area known as the Hill in the northwest corner of the  
20 base, other facilities on the west side of the base, and much of  
21 the currently undeveloped area in the southeastern quadrant of  
22 the base are also included under the Research and Development  
23 Park land use.

24 The Mixed Use land use, shown in dark blue,  
25 occupies many of the administrative, commercial, and service

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

23

1 facilities in the central portion of the base. This land use is  
2 intended to support a denser combination of office, retail,  
3 commercial, and residential uses much like a downtown area in  
4 the neighborhood.

5 The Traditional Neighborhood Development land  
6 use, shown in yellow, is a residential use that includes the  
7 existing family housing area on the north side of the base and  
8 also provides space for additional housing expansion on the  
9 south side near proposed new neighborhood developments just  
10 south of the base.

11 A multifamily residential land use has been  
12 identified for an area near the current main gate on the north  
13 side and a larger area on the southeast corner of the base.  
14 These are shown in the sort of mustard color that you see there.

15 A retail/commercial land use, shown in pink, has  
16 been identified for the northeast corner of the base near the  
17 intersection of Goliad Road and Military Drive. This land use  
18 could include retail stores, restaurants, service stations, and  
19 similar types of activities.

20 A light industrial land use, shown in gray, is  
21 located along the inactive runway on the east side of the base.  
22 This land use could include light manufacturing, warehousing,  
23 laboratories, and similar types of facilities.

24 The public/open space land use, shown in green --  
25 shown in green crosshatching, includes most of the base's

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

24

1 existing athletic facilities, such as the golf course and ball  
2 fields, as well as some buffer areas between housing and other  
3 types of land uses.

4 Possible additional or new access to the Brooks  
5 property as well as primary additional streets that may be  
6 needed are depicted in heavy arrows and dashed lines on each of  
7 the drawings that you will see.

8 Scenario B is shown on this slide. Its  
9 differences from Scenario A include expansions in acreage for  
10 light industrial and open space and reductions in the acreage  
11 for research and development park, mixed use, traditional  
12 neighborhood development, multifamily residential, and retail  
13 commercial.

14 Scenario C is shown on this slide. Its  
15 differences from Scenario A include expansions in acreage for  
16 light industrial, mixed use, open space, and multifamily  
17 residential, along with reductions in the acreage for research  
18 and development park, traditional neighborhood development and  
19 retail commercial. Scenario C also includes demolition of the  
20 current military family housing on the north side of the base  
21 and construction of the new housing on the south side of the  
22 base to replace it.

23 That completes a brief overview of the Land Use  
24 Scenarios currently under consideration. Substantially more  
25 detail regarding these scenarios and the assumptions associated

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

25

1 with them is available in the draft EIS.

2 That completes the summary of Chapter 2,

3 Description of Alternatives Including the Proposed Action.

4 Chapter 3 is the Affected Environmental section

5 in the EIS. It provides a description of the existing

6 conditions in the project area prior to implementing any of the

7 alternatives and serves as a baseline for assessing

8 environmental impacts.

9 Chapter 4 of the EIS, Environmental Consequences,

10 describes the potential environmental impacts that may occur as

11 a result of implementing the Proposed Action or alternatives.

12 The effects of each alternative are compared to the projected

13 baseline conditions over the next 20 years as defined for the

14 No-Action Alternative. Chapter 4 also includes suggested

15 mitigations where potential impacts have been identified.

16 The resources analyzed in Chapter 3 and 4 are

17 grouped into three broad categories. The first group, local

18 community, includes population and employment, land use,

19 transportation, and utilities. Changes in these factors may

20 influence environmental resources.

21 The hazardous materials section addresses

22 hazardous materials management, including storage tanks,

23 pesticide usage, radioactive materials and waste and ordnance.

24 The solid and hazardous waste management section addresses

25 management of the solid and hazardous waste, including the

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

26

1 Installation Restoration Program, or IRP, activities, asbestos

2 abatement and management, medical/biohazardous waste, and

3 lead-based paint. Use and management of these materials may also

4 cause effects to the natural environment.

5 The natural environment section includes those

6 resources traditionally considered as part of environmental

7 studies. These are soils and geology, water resources, air

8 quality, noise, biological resources, and cultural resources.

9 In addition, an environmental justice analysis

10 was conducted to examine potential disproportionately high

11 adverse impacts to low-income and minority populations.

12 The remainder of this presentation will consist

13 of the summary of the draft EIS analysis results for each of

14 these resources.

15 Employment income and population increases are

16 possible with implementation of the Brooks City Base Project.

17 Project-related growth would, however, represent only a small

18 increase over the estimated growth throughout the region.

19 Potential job growth depicted in the land use scenarios was

20 based solely on the perceived potential for job creation at the

21 site based on available space and is not based, in whole or in

22 part, on marketing or other studies.

23 Actual job creation will be dependent on a number

24 of factors, including economic conditions, marketing success,

25 and the perceived desirability of locating a Brooks City Base.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

27

1 Depending on the land use scenario projections used, the

2 implementation of the Brooks City Base Project was estimated to

3 result in up to 27,000 additional direct and indirect jobs in

4 the region by 2020, an increase of up to 2.49 percent over the

5 projected levels of employment without the Brooks City Base

6 Project. This level of employment growth could result in a

7 regional population increase of up to 32,000 people by 2020.

8 This represents an average increase in the region's projected

9 population growth of up to one and a half percent over the

10 projected population of the region without the Brooks City Base

11 Project.

12 The land uses featured in the EIS are compatible

13 with surrounding existing and future planned land uses. New

14 development would maintain the architectural theme that

15 currently exists on the base. Appropriate design and

16 landscaping are expected to maintain the existing medium-quality

17 viewsheds that are present. Because the land use associated

18 with Brooks City Base Project would be compatible with

19 surrounding land uses and community land use plans, and visual

20 sensitivity would be retained, no significant impacts are

21 anticipated.

22 Transportation. The performance of a roadway

23 segment is generally expressed in terms of level of service, or

24 LOS. LOS D, E and F are considered poor to completely jammed

25 road situations. With implementation of the Brooks City Base

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

28

1 Project, up to seven of the 25 local road segments analyzed

2 would be degraded to LOS D or lower by 2020 because of projected

3 increases in traffic.

4 Under the No-Action Alternative, as a result of

5 regional growth not associated with City Base, one road segment

6 is projected to be operating at LOS D by 2020. Mitigation

7 measures, such as modifications to local road networks and

8 programs such as carpooling, vanpooling, and utilization of

9 available mass transit, flexible work -- and flexible work

10 schedules, could be implemented to reduce the level of impact

11 and bring the segments with unacceptable LOS up to an acceptable

12 level.

13 Projected utility demands in 2020 would be

14 greater than baseline demands for all utilities. This increase

15 is primarily associated with projected regional growth. By

16 2020, project-related utility use would represent somewhat less

17 than 2 percent of consumption within the region of impact -- or

18 region of influence, rather. Utility systems in the region

19 would continue to operate within capacity, however. Increases

20 in potable water usage resulting from development and increased

21 population on Brooks, would be off-set in part by connection to

22 a recycled water distribution system currently being constructed

23 by the San Antonio Water System.

24 Types of hazardous materials used in the future

25 would be similar to those used under baseline conditions;

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

29

1 however, the quantity of hazardous materials utilized could  
2 increase with implementation of the City Base Project due to new  
3 developments. Hazardous materials management, storage tanks,  
4 pesticide usage, radioactive materials management and ordnance  
5 would be -- are expected to be managed in accordance with  
6 applicable regulations and laws by the property recipient and/or  
7 user. Because management of hazardous materials is expected to  
8 occur in accordance with applicable regulations, no impacts are  
9 anticipated under implementation of the City Base Project.

10 The increase in solid waste generation would be a  
11 small percentage of the projected total generation in the region  
12 and would be well within the region's landfill capacity. No  
13 significant impacts are expected.

14 Types of hazardous waste produced on the base  
15 would be similar to those produced under baseline conditions;  
16 however, once again, the quantity of hazardous waste could  
17 increase due to new development. Hazardous waste is expected to  
18 be managed in accordance with applicable regulations by the  
19 property recipients.

20 Hazardous waste management, asbestos management,  
21 medical and biohazardous waste management or disposal and  
22 lead-based paint are expected to be managed in accordance with  
23 applicable regulations and laws by the property and recipient  
24 and/or user. Therefore, management of hazardous waste is not  
25 expected to generate impacts.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

30

1 The Air Force is responsible for remediation of  
2 all active IRP or cleanup sites on Brooks Air Force Base and is  
3 committed to continue IRP activities to completion. The type of  
4 development that is appropriate for property adjacent to or over  
5 an IRP site, such as a closed landfill, may be limited by the  
6 risk to human health and the environment posed by contaminants  
7 at the site. All development associated with the Brooks City  
8 Base Project is expected to comply with these identified  
9 constraints.

10 Effects on regional soils would be minimal with  
11 implementation of the City Base Project and would result  
12 primarily from ground disturbance associated with facility  
13 construction, renovation, demolition, and infrastructure  
14 improvements. Short-term impacts could occur during ground  
15 disturbing activities. A Texas Pollutant Discharge Elimination  
16 System permit and Storm Water Pollution Prevention Plan would be  
17 prepared prior to any large-scale construction in accordance  
18 with current state and federal regulations. The Texas Pollutant  
19 Discharge Elimination System permit and Storm Water Prevention  
20 Plan would outline strict limitations designed to prevent soil  
21 erosion and would minimize impacts to soils and geology. Use of  
22 best management practices and controls would further reduce the  
23 potential for erosion of disturbed soils.

24 Development associated with the Brooks City Base  
25 would cause an increase in impervious surfaces and storm water

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

31

1 runoff. However, because much of the base is already moderately  
2 developed, the additional construction is not expected to  
3 substantially alter surface runoff. Proposed activities, once  
4 again, would most likely be subject to the Texas Pollutant  
5 Discharge Elimination System permit requirements for storm water  
6 discharged during construction periods.

7 Water demand is expected to increase with City  
8 Base; however, this demand is being considered in regional  
9 growth planning. Once again, a portion of the increased water  
10 demand on Brooks would be off-set by connection to the SAMS  
11 recycled water system for irrigation here on the base. No new  
12 development would occur within delineated floodplains on Brooks  
13 Air Force Base. No impacts to groundwater recharge, flow  
14 patterns, water supply, or floodplains are anticipated, and  
15 water quality is not expected to be degraded.

16 Air emissions from construction activities would  
17 create elevated short-term concentrations at receptors close to  
18 construction sites. Emissions of criteria pollutants however  
19 would be less than the 250-ton per year U.S. Environmental  
20 Protection Agency significant threshold. Due to the current  
21 attainment status of the San Antonio area, this project is not  
22 currently subject to general conformity and is not expected to  
23 affect the attainment status of the region.

24 Surface traffic noise levels would increase by  
25 2020 due to projected increases in regional traffic. Four areas

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

32

1 have been identified -- Four areas near Brooks Air Force Base,  
2 rather, have been identified as sensitive receptors: The single  
3 family housing along Goliad Road, the residential areas on  
4 Southeast Military Drive, the single family housing on  
5 South Presa Street, and the Texas Center for Infectious Disease  
6 on Southeast Military.

7 The estimated noise levels of sensitive receptors  
8 would be between 63 and 67 decibels, an increase of up to three  
9 decibels over the No-Action Alternative at certain locations.  
10 However, these noise levels are within two decibels of the U.S.  
11 Department of Housing and Urban Development guideline of 65,  
12 which is considered acceptable for residential areas.  
13 Therefore, no significant noise impacts are expected.

14 No federally or state-listed rare, threatened, or  
15 endangered plant or wildlife species are known to occur on  
16 Brooks Air Force Base. Construction activities would create  
17 ground disturbance and short-term impacts to vegetation and  
18 wildlife. Wetlands are present within Brooks; however, these  
19 areas would not be developed to disturbed under the Brooks City  
20 Base Project. No significant impacts therefore have been  
21 identified for biological resources.

22 No prehistoric or historic archaeological  
23 resources have been identified within Brooks Air Force Base and  
24 no further archaeological studies are required for the base.  
25 Therefore, there are likely to be no prehistoric or historic

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

33

1 archaeological properties that could be affected by  
2 implementation of the City Base Project.

3           However, with implementation of City Base, the  
4 Air Force could transfer property that encompasses currently  
5 identified historic properties eligible for listing on the  
6 National Register of Historic Places. Potential adverse effects  
7 on historic properties have been considered during the  
8 preparation of the EIS. Potential adverse effects on any  
9 historic buildings and structures, either currently identified  
10 or identified in the future, would be reduced to nonadverse  
11 levels through measures agreed upon by the Air Force, the Texas  
12 State Historic Preservation Officer, and as appropriate, the  
13 City of San Antonio Historic Preservation Officer, the  
14 San Antonio Conservation Society, and the Advisory Council on  
15 Historic Preservation.

16           Based on the analysis presented in this EIS, no  
17 significant adverse impacts are anticipated from implementation  
18 of the Brooks City Base Project. Because no significant adverse  
19 impacts were identified, no disproportionately high or adverse  
20 impacts to low income or minority populations would be expected  
21 and no environmental justice impacts are anticipated.

22           That concludes the presentation of the draft EIS  
23 results. In closing, I'd like to remind you that we are here  
24 this evening to request your input to the environmental process  
25 and specifically to hear your comments on the draft EIS. We

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

34

1 will be accepting written comments on the document through  
2 November 20th at the address shown on the slide. Thank you for  
3 your attention.

4           COLONEL MICHAEL: Thank you, Mr. Clark. We will  
5 now move into the public comment portion of this evening's  
6 session with a few reminders. As you can see and I mentioned  
7 earlier, everything here is being documented and recorded by a  
8 court reporter and will become an official part of the record of  
9 this meeting.

10           This record will ensure that the preparers will  
11 be able to identify significant issues from your oral  
12 presentations so that they may be addressed in the environmental  
13 impact statement. Written comments will also become part of the  
14 record and will receive equal consideration. Written comment  
15 sheets are available at the registration table, as I mentioned  
16 earlier. If you decide to make written comments or add an  
17 additional comment after this hearing, you may send them to the  
18 address shown on this slide by November 20th, 2000.

19           Again, this is your opportunity to provide your  
20 comments. There's still time, if you wish, to fill out a card  
21 and give it to one of our representatives. Please remember to  
22 use the microphone. We will set that up shortly so that you may  
23 be able to use it. State your name for the record and your  
24 address before you begin speaking. In addition, if you are  
25 representing a specific group, please identify that group by

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

35

1 name. And, again, I would ask that you limit your comments to  
2 five minutes, as I mentioned earlier.

3           I have a card from -- if I mispronounce this name  
4 I apologize. I believe it's Orville Keilman. And, again, if I  
5 mispronounced that, I apologize, sir, and if you would like to  
6 make a statement, feel free to step up to the microphone and do  
7 so.

8           MR. KEILMAN: Well, my name is Orville Keilman.  
9 I live on --

10           COLONEL MICHAEL: Step up to the microphone a  
11 little bit, sir, so we can hear you.

12           MR. KEILMAN: Yes, sir.

13           COLONEL MICHAEL: Thank you.

14           MR. KEILMAN: My name is Orville Keilman --

15           COLONEL MICHAEL: That's better.

16           MR. KEILMAN: -- and I live on Nancy Carole --  
17 3123 Nancy Carole Way here in San Antonio. My comment is that I  
18 own some property right off of South Presa there, and there's  
19 water that comes from the School of Aviation Medicine down to  
20 the Old Corpus Christi Road and goes across Old Corpus Christi  
21 Road into my property, and the water is running through there  
22 all the time and stagnant. And what happen is the City of  
23 San Antonio put two big sewer lines through there on the Old  
24 Corpus Christi Road about 30 inches there; and, at that time,  
25 the water instead of going on top of them, it went underneath.

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

**Document 1**

36

**1-1  
cont'd**

1 And my dad had dug all the topsoil and sold it off and it was  
2 about 30 feet deep there and I had it all filled in except this  
3 one outfit and liked to fill it and level the land up because  
4 it -- We own -- My grandparents owned Brooks Field at one time,  
5 and he owned the place where the School of Aviation Medicine is.  
6 Well, they owned that too there and sold it during the War there  
7 and finally they got paid after the War, but you couldn't -- it  
8 wouldn't pay nothing, you know, during the War.

9           So, anyway, I've got this water problem there and  
10 I am scared somebody is going to get in trouble there and then  
11 they would sue me there, and the City has got water too there on  
12 the Old Corpus Christi Road. But there's a big pipe that comes  
13 from the -- this School of Aviation Medicine, about 30 inches  
14 deep, that comes down through there, and some of the fellas over  
15 there at Brooks Field there tell me that it is a spring up  
16 underneath that building.

17           Well, there's seven springs around in this area  
18 and they all salt water -- sulphur water and this here water is  
19 pure -- perfect, they say. I was wondering why they couldn't  
20 use it on their golf course or something or other, but they got  
21 some kind of agreement with the Aggie Refinery across Presa  
22 Street, so I don't know nothing about what kind of agreement  
23 they got with the City, but that's what the fellas over at  
24 Brooks Field told me there. And I told them, I said, "Well, we  
25 could sell that thing. If you wanted to, I could sell that out

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

Document 1

1-1  
cont'd

1 to you." They said, "No. We don't have no money."  
2 So I -- So I don't know what we are going to do,  
3 but the City is involved too, I imagine. They haven't said too  
4 much to me about it, but just contacted Brooks Field there, and  
5 y'all got the letter there that I wrote, so -- I don't know -- I  
6 don't know if that water is -- if it is suitable there or not,  
7 but I -- it is a terrible looking mess down there on the Old  
8 Corpus Christi Highway there and the City should take, you know,  
9 a look at -- into it.  
10 I know you used come down there and spray that  
11 every once in a while there to keep the mosquitos down, but I  
12 don't think they do anything anymore. They just let it grow up.  
13 That's about all I've got to say.  
14 COLONEL MICHAEL: Thank you very much,  
15 Mr. Keilman. There are representatives from the City here and  
16 I'm sure they're listening to your comments.  
17 Is there anyone else who would like to present  
18 verbal testimony here this evening? (No response) Apparently  
19 not. This will conclude the public hearing. Again, if you  
20 should later decide to make additional comments or you would  
21 like to receive copies of the environmental impact statement,  
22 you may do so through the address shown on the slide. Again, we  
23 appreciate your participation in this public hearing, and I'd  
24 like to thank you-all for coming out. Have a good evening.  
25 (Public hearing concluded at 7:54 p.m.)

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

Document 1

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

CERTIFICATE FROM THE  
PUBLIC HEARING MEETING FOR THE  
ENVIRONMENTAL IMPACT STATEMENT FOR  
BROOKS CITY BASE PROJECT  
OCTOBER 25, 2000

I, DARLENE ZUEHL, a Certified Shorthand Reporter in  
and for the State of Texas, do hereby certify that the foregoing  
Public Meeting was taken by me in stenograph and later  
transcribed from stenograph into typewriting to the best of my  
ability and under my direction, and that the charge for the  
completed transcript is 202- due from Jennifer Harriger,  
Earth Tech.  
WITNESS MY HAND, this the 30<sup>th</sup> day of  
October, A.D. 2000.

Cert No. 7505  
Expires: 12-31-02

*Darlene Zuehl*  
DARLENE ZUEHL  
(210) 227-1525  
Certified Shorthand Reporter and  
Registered Professional Reporter  
in and for the State of Texas

ORIGINAL NOT VALID UNLESS  
SIGNED BY REPORTER

SAN ANTONIO COURT REPORTING  
700 N. ST. MARY'S ST., STE. 1525  
SAN ANTONIO, TEXAS 78205 (210) 227-1525

Document 2

2-1  
cont'd

*Mr. Jonathan Farthing October 25, 2000  
Chief, Environmental Division  
H&B/CCE/FCA  
3207 North Road  
Brooks AFB, TX 78235-5363*

*Dear Mr. Farthing*

*I would like to inform you of a situation  
on my property. Water has been running  
from Brooks AFB onto my property for  
many, many years.*

*I contacted Larry Farlow of Public Affairs,  
to try to solve this situation. He sent  
several civil engineers from Brooks to meet  
with me and a representative from the  
Congressman's Frank Tejeda's office. One of  
the engineers said the water was from  
a spring near the road and then he  
changed and said it comes from under  
a building at Brooks and nothing could  
be done about it.*

*My grandparents, the Rudolph Keilmans  
owned the land and then sold it to  
Brooks Field, so I am familiar with all the  
property and no springs exist on the  
property. Should such springs exist,  
they would be sulphur springs.*

*The water becomes stagnant in dry  
weather and I have seen children*

Document 2

2-1  
cont'd

*playing in it. The stagnant water  
does not stay on Brooks but only on  
my property and the City's property.*

*Anything you can do to settle this  
situation would be greatly  
appreciated.*

*Sincerely,  
Orville Keilman*



# Document 3



received  
10/29/2000

## MEMORANDUM

TO: Mr. Jonathan D. Farthing  
Brooks Air Force Base

FROM: David Carrothers, Chairman  
Economic Development and Environmental Review Committee

DATE: November 8, 2000

SUBJECT: Project Review Meeting

1. The AACOG Economic Development and Environmental Review Committee (EDERC) will review your application during its meeting on November 21<sup>st</sup>, 2000 at 9:30 a.m. in AACOG's conference Suite 100 located on the ground floor at 8626 Tasso.

YOU OR YOUR REPRESENTATIVE SHOULD BE PRESENT AT THIS MEETING IN ORDER TO PRESENT A BRIEF OVERVIEW OF THE FOLLOWING:

APPLICATION-Brooks Air Force Base; Draft Environmental Impact Statement (DEIS) for the Brooks City Base Project, Brooks Air Force Base, Tx. AACOG TRACS # TX-R-2000-10-04-0003-50-18

2. The AACOG Board of Directors will take final action on the project at its meeting on December 13<sup>th</sup>, 2000, at 10:00 a.m. in conference suite 100 of the AACOG offices.

YOU OR YOUR REPRESENTATIVE CAN BE PRESENT AT THIS MEETING AS WELL, TO ANSWER ANY QUESTIONS.

3. If you have any questions about this matter, please call Shelley Whitworth's office at (210) 362-5225.

SAW:spf

# Document 3

## Texas Review and Comment System Review Notification

Applicant/Origination Agency: Department of the Air Force  
Contact Name: Mr. Jonathan D. Farthing  
Contact Phone: 210/536-3668  
Email:

Project Name: EIS: Brooks City Base Project - Brooks Air Force Base, Texas

Funding Agency: USAF  
Date Received: 9/29/2000

SAF/EIS#: TX-R-20001004-0003-50  
Date Comments Due RFD: 10/29/2000

### Review Participants

Agencies	Cops
Texas Natural Resource Conservation Commission	Alamo Area Council of Governments
Mr. Mary Lindley	Ms. Laura New Stephens
Office of Policy & Regulatory Dev. MC205	TRACS Coordinator
P. O. Box 13087	118 Broadway, Suite 400
Austin, Texas	San Antonio, TX 78205

Bureau of Economic Geology  
Scott Tinker, Ph.D.  
Director  
University Station, Box X  
Austin, Texas

Texas Historical Commission  
Dr. James Brumbaugh  
TRACS Coordinator  
1311 Colorado Street  
Austin, Texas

### Special Notes/Comments:

Summary of draft EIS is provided by SPOC. REVIEWERS SHOULD CONTACT APPLICANT DIRECTLY FOR COMPLETE COPY OF APPLICATION for review.

☐ No Comment

Return Comments to:

Review Agency: *Denise S. Francis* Signature  
Denise S. Francis, State Single Point of Contact  
Governor's Office of Budget & Planning  
P.O. Box 12428  
Austin, TX 78711  
(512) 365-9415

# Document 4



received  
10/29/2000

GEORGE W. BUSH  
GOVERNOR

STATE OF TEXAS  
OFFICE OF THE GOVERNOR

Friday, November 10, 2000

Mr. Jonathan D. Farthing  
Department of the Air Force  
HQ AFCEB/BCA, 1307 North Road  
Brooks Air Force Base, TX 78235-5563  
RE: TX-R-20001004-0003-50

EIS: Brooks City Base Project - Brooks Air Force Base, Texas

Dear Mr. Farthing:

Your application for assistance referenced above has been reviewed. The comments received are summarized below and are attached.

4-1 TNRC must address any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions pose no significant impact upon air quality standards. The minimal dust and particulate emissions can easily be controlled with standard dust mitigation techniques by the construction contractors. No other substantive comments were received.

We appreciate the opportunity to review your proposal. Please let me know if we can be of further assistance.

Sincerely,

*Denise S. Francis*  
Denise S. Francis, State Single Point of Contact  
DSF:nb

cc: United States Air Force

Post Office Box 12428 Austin, Texas 78711 (512) 465-2000 (Voice)/(512) 475-3165 (TDD)

# Document 4

Robert J. Mutton, Chairman  
R. B. "Ralph" Marquez, Commissioner  
John M. Baker, Commissioner  
Jeffrey A. Salas, Executive Director



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 23, 2000

RECEIVED  
OCT 26 2000

GOVERNOR'S OFFICE

Ms. Denise S. Francis  
Governor's Office of Budget & Planning  
P.O. Box 12428  
Austin, Texas 78711

Re: TX-R-20001004-0003-50

Dear Ms. Francis:

The following staff of the Texas Natural Resource Conservation Commission (TNRCC) have reviewed the above-referenced project and offer the following comments.

4-2 Staff recommends the environmental assessment address action that will be taken to prevent surface and groundwater contamination during and after construction.

If you have questions regarding water quality comments, please feel free to contact Mr. Clyde Bohanfolk, Policy and Regulations Division, at (512) 239-1315.

4-3 The Strategic Assessment Division has reviewed the above-referenced project for General Conformity impacts in accordance with 40 CFR Part 93 and Chapter 101.30 of the TNRC General Rules. The proposed action is located in Bexar County, which is unclassified or in attainment of the National Ambient Air Quality Standard for all six criteria air pollutants. Therefore, general conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions pose no significant impact upon air quality standards. The minimal dust and particulate emissions can easily be controlled with standard dust mitigation techniques by the construction contractors.

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrc.state.tx.us

printed on recycled paper using soy-based ink


#### Document 4

Ms. Denise S. Francis  
Page 2  
October 23, 2000

If you have any questions regarding air quality, please feel free to contact Mr. Ken Gathright, SIP Development Team, at (512) 239-0599.

Thank you for the opportunity to review this project. If I may be of further service, please call me at (512) 239-1454.

Sincerely,

  
Mary Lively  
Office of Environmental Policy, Analysis, & Assessment  
Texas Natural Resource Conservation Commission

#### Document 5

Robert J. Huston, Chairman  
R. B. "Ralph" Marques, Commissioner  
John M. Baker, Commissioner  
Jeffrey A. Saitas, Executive Director



received  
11/2/00

#### TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 16, 2000

Mr. Jonathan D. Farthing  
HQ AFCEE/ECA  
1307 North Road  
Brooks Air Force Base, TX 78235-5363

Re: DEIS - Brooks City Base Project

Dear Mr. Farthing:

The following staff of the Texas Natural Resource Conservation Commission (TNRCC) have reviewed the above-referenced project and offer the following comments:

- 5-1 The staff does not anticipate significant long-term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state and federal environmental permits and regulations. However, it is recommended that the applicant take necessary steps to insure that best management practices are utilized to control runoff from construction sites be utilized to prevent detrimental impact to surface and groundwater.

If you have questions regarding water quality comments, please feel free to contact Mr. Clyde Bohmfalk, Policy and Regulations Division, at (512) 239-1315.

- 5-2 It has been determined from a review of the information provided that an Application for TNRCC Approval of Floodplain Development Project need not be filed with TNRCC. Our records show that the community is a participant in the National Flood Insurance Program and as such has a Flood Hazard Prevention Ordinance/Court Order. Accordingly, care should be taken to ensure that the proposed construction takes into account the possible Flood Hazard Areas within the community's floodplains. Please notify the community floodplain administrator to ensure that all construction is in compliance with the community's Flood Hazard Prevention Ordinance/Court Order.

If you have any questions regarding this comment, please feel free to contact Mr. Mike Howard, Floodplain Management Section, at (512) 239-6155.

P.O. Box 13687 • Austin, Texas 78711-3087 • 512/239-1600 • Internet address: [www.tnrcc.state.tx.us](http://www.tnrcc.state.tx.us)  
printed on recycled paper using soy-based ink

#### Document 5

Mr. Jonathan D. Farthing  
Page 2  
November 16, 2000


- 5-3 The Strategic Assessment Division has reviewed the above-referenced project for General Conformity impacts in accordance with 40 CFR Part 93 and Chapter 101.30 of the TNRCC General Rules. The proposed action is located in Bexar County, which is unclassified or in attainment of the National Ambient Air Quality Standard for all six criteria air pollutants. Therefore, general conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions pose no significant impact upon air quality standards. The minimal dust and particulate emissions can easily be controlled with standard dust mitigation techniques by the construction contractors.

If you have any questions regarding air quality, please feel free to contact Mr. Ken Gathright, SIP Development Team, at (512) 239-0599.

Thank you for the opportunity to review this project. If I may be of further service, please call me at (512) 239-1454.

Sincerely,

  
Mary Lively  
Office of Environmental Policy, Analysis, & Assessment  
Texas Natural Resource Conservation Commission

#### Document 6



#### United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
Post Office Box 549  
Albuquerque, New Mexico 87105

November 21, 2000

ER 00/736

Mr. Jonathan D. Farthing  
HQ AFCEE/ECA  
1307 North Road  
Brooks Air Force Base, TX 78235-5367

Dear Mr. Farthing:

The U.S. Department of the Interior (DOI) has reviewed the Draft Environmental Impact Statement (DEIS) for the Brooks City Base Project, Brooks Air Force Base (AFB), San Antonio, Texas, dated September 2000. The U.S. Air Force proposes to convey real property located at Brooks AFB, TX to the city of San Antonio or other public/private entities for land-use development compatible with the Air Force mission. The following comments are provided for your consideration.

- 6-1 The analysis of cultural properties focused on those areas within the boundaries of the base but excluded adjacent historic properties. The project's "affected area" encompasses the four missions within the National Register Historic District and associated sites. This District contains two National Historic Landmarks as well as the "South Central San Antonio Community Plan" and the "Avenidas del Rio Business Corridor."

- 6-2 Although the bulk of the proposed development falls within the base proper, we are concerned that the National Register Historic District was not mentioned. It is important that development planned near any mission sites or their related areas take into consideration the following:

- 1) Proximity of commercial or residential development which could have a direct or indirect impact on the qualities for which the historic properties were added to the National Register;
- 6-3 2) Traffic patterns, if the existing ones are to be modified, causing an impact to the historic resources making up San Antonio Missions National Historical Park (Park),

## Document 6

- 2
- 6-4 3) Proximity of development has the potential to alter water patterns and any new development might increase the potential for contamination of waterways. Both these factors could have a drastic effect on the historic acequia systems (irrigation ditches) related to Missions San Juan and Espada. These acequia systems date to the 1700s. One (the Espada acequia) has been in continual use since the 1700s. Local farmers and residents rely on the system for irrigation water. The park also has water rights for these systems; and,
- 6-5 4) Proximity of new development has the potential to change the carefully guarded viewsheds which exist with all the mission sites. Noise and air pollution would cause similar concerns. The National Historical Park relies on its visitors. Any proposed development in the proximity of the historic sites must take this into consideration.
- 6-6 Lands associated with the San Juan acequia system are repeatedly referred to as "vacant lands," instead of properties that contain a culturally sensitive and historically significant resource. Further environmental documentation should acknowledge that Brooks AFB has a National Park as a neighbor and make reference to visitation, economic benefits of the Park, National significance, etc.
- 6-7 In addition, the potential cumulative effects of the proposed City Base project were not outlined in the DEIS. This includes the expansion of Stinson Airport near Mission San Juan to accommodate corporate jets and increased air traffic to that facility, as well as the potential for increased traffic on Presta Street and the possibility that the road could be widened to four lanes (the park has lands on both sides of the road). Park lands are only separated from Stinson Airport by approximately 1500 feet, including the road. Encroachment on Park lands is of particular concern as it has the potential to significantly affect historic resources through increased pollution, noise levels, and vibration. If new parking lots were constructed on base, the potential increase of surface water runoff could severely overburden the historic acequia system, which is still actively used. The Park is in the process of buying houses and commercial properties in the area to eventually open the viewshed from Presta Street to parklands, including Mission San Juan. These purchases, and their potential to change local land use and the visual sensitivity, should also be incorporated into determination of cumulative impacts.
- 6-8 San Antonio Missions National Historical Park could be an asset for drawing businesses. Businesses could promote the fact that the Park provides green space and hiking and biking opportunities, as well as the social, cultural, and historical aspects of a National Park unit. However, Chapter 3, Affected Environment, neglects the potential for impact of and to the historic resources associated with the Park. More emphasis is needed in acknowledging the Park's importance to the community and the Nation.

## Document 7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
1446 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2743  
December 4, 2000

Mr. Jonathan D. Farthing  
HQ AFCE/CA  
1307 North Road  
Brooks Air Force Base, TX 78235-5363

Dear Mr. Farthing:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the Region 6 Office of the U.S. Environmental Protection Agency (EPA) has completed the review of the Draft Environmental Impact Statement (DEIS) prepared by the United States Air Force for the Brooks City Base Project, Brooks Air Force Base, Texas.

7-1 EPA classifies your Draft EIS and proposed action as "LO-2," i.e., EPA has "Lack of Objections to the preferred alternative." EPA requests additional information to strengthen the FEIS. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions.

Detailed comments on the Draft EIS have been prepared and are enclosed with this letter for your consideration in preparation of the Final EIS. If you should have any questions, please contact me at (214) 665-7451.

We appreciate the opportunity to review the Draft EIS. We request that you send our office one (1) copy of the Final EIS at the same time that it is sent to the Office of Federal Activities (2251A), EPA, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20044.

Sincerely yours,

*Michael P. Jansky*  
Michael P. Jansky, P.E.  
Regional EIS Coordinator

Enclosure

Internet Address (URL) = <http://www.epa.gov>  
Reply-to/Responsible = Printed with Vegetation Off Based Job on Requested Paper (JANUARY 2001, P. 3) (continued)

## Document 7

### DETAILED COMMENTS U.S. AIR FORCE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR PROPOSED BROOKS CITY BASE PROJECT, TEXAS

#### Background

The proposed action is the implementation of the Brooks City Base Project (BCBP). In October 1995, the Congress of the United States passed legislation (Fiscal Year 2000 Defense Appropriations Act, Section 818, Public Law 104-79), known as the Base Realignment Project, allowing the Air Force to conduct a demonstration project at Brooks Air Force Base (AFB). The project is intended to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks AFB. The purpose of the legislation is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less costly base support services, where available. The purpose of the BCBP analysis in this EIS is to implement this legislation. The EIS addresses the potential environmental impacts associated with the Brooks City Base Project. The proposed action is a transfer/lease of Brooks AFB property.

#### Alternatives

##### Alternative A, the Proposed Action

The Air Force proposes to convey (transfer real estate through five single deed) all or portions of the approximately 1,315 acres of base real property that can be legally conveyed, including facilities and infrastructure, to the City of San Antonio (CoSA) or other public or private entities where CoSA would maintain control of future development through its planning and zoning authority. The Air Force would continue to have responsibility for maintaining active Installation Remediation Program (IRP) sites, including enforcement of institutional controls. CoSA or other entities would develop transferred portions of the base property in a manner that is not inconsistent with current Brooks AFB operations. All base operating support (BOS) functions would initially remain under Air Force control. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection, and utility infrastructure support would ultimately be transferred to CoSA or other entities. Transferred property with facilities necessary to continue the Air Force mission would be leased back on an as-needed basis.

Once land has been transferred or outgranted to the City of San Antonio or other public or private entities, vacant land would be developed by construction of new facilities and infrastructure. Existing facilities would continue to be used to support current Air Force activities, converted to support other uses, or demolished. The land-use scenarios developed for analysis in the EIS represent varying approaches to implementation of the Brooks City Base Plan in order to demonstrate the range of potential development and associated impacts that may

occur under the Brooks City Base Plan.

##### Alternative B, Outgrant Alternative

The Outgrant Alternative would involve outgranting the property to public or private entities consistent with the purpose of P.L. 106-79. For the purposes of this EIS, outgrants may include leases, licenses, permits, or rights-of-entry. Under this alternative, the Air Force would maintain continuing control and responsibility for the property and would have a continuing responsibility to conduct NEPA analysis as necessary as individual leases are negotiated.

The Air Force would continue to have responsibility for remediation of active IRP sites, including enforcement of institutional controls that may exist for these sites. Recipients and/or users of property where closed IRP sites are present would be responsible for enforcement of institutional controls. CoSA or other public or private entities would develop outgranted portions of the base property in a manner that is not inconsistent with current Brooks AFB operations. All base operating support functions would initially remain under Air Force control. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection, and utility infrastructure support could be transferred to CoSA or other entities, if feasible. For analysis purposes, Air Force organizations are expected to remain within the primary facilities they currently occupy.

##### Alternative C, No-Action Alternative

Under the No-Action Alternative, the Brooks City Base Project would not be implemented. Conveyance or outgrant of base property would not occur, and current operations on Brooks AFB would continue. The Air Force would continue to incur base operating support and maintenance costs.

#### Comments

The following comments are now offered for your consideration in the development of the Final EIS:

- 7-2 1. Chapter 2 of the DEIS discusses the fact that under the various land use scenarios, a certain square footage of existing facility space will be demolished within a specified time-frame. For each Scenario, please provide a location and description of the facility space which is planned for demolition or may be demolished. Please address in the FEIS.
- 7-3 2. Section 2.4 of the DEIS indicates that the potable water consumption will decrease even though the population is expected to increase. Please provide an explanation within the text of the FEIS.
- 7-4 3. It would be helpful if the various land use categories shown in Figure 2.2-5 of the DEIS could be defined. Please address in the FEIS.

Document 7

- 7-5 4. Section 3.4.2.1 of the EIS indicates that "State hazardous waste programs approved under the Resource Conservation and Recovery Act (RCRA) operate in line of Federal rules." The FEIS should clarify that the State authorized programs do not operate in line of Federal rules, but are authorized to administer the Federal rules. Furthermore, State authorized programs must be equally or more stringent than the Federal regulations. Please explain in the FEIS.
- 7-6 1. Section 3.3.2, page 3-4. The land use analysis did not include information on land ownership and what potential effects might occur between site in the single and household. Such considerations might be helpful since the development initiative is a joint proposal by the US Air Force and the City of San Antonio. Please address in the FEIS.

Document 8



January 2, 2001

Mr. Jonathan D. Farthing  
HQ AFCEB/CA  
3307 North Rd.  
Brooks Air Force Base TX 78235-5363

RE: AACOG TRACS # TX-R-2000-10-04-0003-50  
Brooks Air Force Base, Texas  
Brooks City Base Project  
Environmental Impact Analysis

Dear Mr. Farthing,

This letter is to advise you that the Board of Directors of the Alamo Area Council of Governments met on Wednesday, December 13, 2000 and recommended a consensus to proceed on the Brooks City Base Project Environmental Impact Analysis.

If you have any questions, please call me or Shelley Whitworth, AACOG Staff, at (210) 362-5203.

Respectfully Yours,

Al J. Nordin, III  
Executive Director

ANod/bw

Document 9



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
10771 River Road, Suite 200  
Austin, Texas 78748  
(512) 261-6207

February 9, 2001

Case #0-10-PW-112

Mr. Robt Oragg  
HQ AFCEB/CA  
3307 North Road  
Brooks, AFB, TX 78235-5363

Dear Mr. Oragg:

This responds to your September 28, 2000, request to provide comments on the Draft Environmental Impact Statement (EIS) for the Brooks City Base Project (BCBP) at Brooks Air Force Base (AFB), Texas.

The Department of the Air Force proposes to convey (transfer real estate interest through the single deed) all or portions of the approximately 3,110 acres of base real property that can be legally conveyed, including facilities and infrastructure to the City of San Antonio and other public or private entities. The City of San Antonio would maintain control of 7,200 development through its planning and zoning authority. Responsibility for facility maintenance, roads and grounds maintenance, police, fire protection and utility administration support would also ultimately be transferred to the City and other entities. Utility systems include the facilities and infrastructure used for potable water pumping, treatment, and distribution, wastewater collection and treatment, sewage. Transferred property and facilities necessary to continue the Air Force mission would be leased back on an approved basis.

The alternatives looked at are the Proposed Action, Outright Alternative and No-Action. Three land use scenarios (Scenario A, B, C) were considered to address potential impacts associated with future use of base property. Scenario A features development of mixed use, research and development park, traditional neighborhood development (TND), light industrial, retail/commercial, and multi-family residential uses. Scenario B would have low density use, research and development, TND and light industrial retail and commercial land uses. A larger amount of multi-family residential density is envisioned. Scenario C features a greater amount of mixed use and multi-family residential and less TND than either Scenario A or B. All three land use scenarios include varying amounts of savings for public/private space use.

Increases in employment, population, vehicles, traffic, use of water resources, noise and air emissions would increase. The responsibility for suggested mitigation for any impacts would be borne primarily by property recipients and users, although the AF would provide mitigation recommendations as property recipients and/or users by deed covenants or lease or easements.

Document 9

1  
Remediation of sites under the ERP program, and other applicable regulatory programs is and will continue to be the responsibility of the AF.

The Service provides these comments:

- 9-1 (1) In a letter dated February 21, 1999 to Mr. Dale Clark regarding the City Base Concept at Brooks AFB, we expressed our concern that the combined current level of water withdrawal for all customers from the aquifer adversely affects aquifer-dependent species located at Canal and San Marcos springs and in the aquifer during low flows. Brooks AFB may not directly pump necessary water directly from the aquifer, however, it does contribute to the total water pumped by SAWS. We also expressed our concern that SAWS does not have an incidental take permit to cover take of Edwards Aquifer dependent species that could reach from this groundwater withdrawal.

The Edwards Aquifer Authority has issued new proposed permits that outline the amount of water that will be allowed by each purveyor of the Edwards Aquifer. However, the new proposed permits do not reduce pumping to 450,000 ac/ft/yr as required by legislation nor is alignment in what the Service believes is necessary to protect spring flows and listed species. Therefore it is the responsibility of Brooks AFB, even though they get their water from SAWS, to address the effects of the Edwards Aquifer water withdrawals in the BIF and to advise us as to how Brooks will limit their own use as well as limit water use by the private entities they will transfer or lease their facilities to.

- 9-2 (2) Brooks AFB also maintains and executes a Water Conservation Plan that conforms to the City of San Antonio's Aquifer Management Plan. The Service has in the past informed the City of San Antonio and the Edwards Aquifer Authority that although a step in the right direction toward regulation of aquifer use, the Service believes that the rules are not adequate and need to be strengthened to assure necessary flows for listed species at Canal and San Marcos Springs. We recommended a drought plan similar to Fort Ben Houston's and Lackland, Randolph and Kelly AFBs be implemented at Brooks AFB.

- 9-3 (3) We are aware that much is in effort to reduce dependency on the aquifer. However, data presented in the EIS clearly show a steady increase in known demands and indicate that reuse water will help reduce the demands on the aquifer. It is the Service's concern that there may be a general perception that by providing for part of the water needs through a reuse project, more will be made available for potable uses. The ultimate goal is to reduce the region and reduce the negative environmental effects of continued total reliance on the aquifer. Therefore, reduction by reuse should be used as one of several alternative water sources that would result in a permanent reduction from the current amount of potable water pumped from the aquifer. Water quality is key to success. Appropriate treatment would also need to be analyzed to protect freshwater users.

The Service is also concerned about the potential adverse impacts to the stream and resources from discharging/reusing effluents and other return flows. During droughts, some stream segments and the ecosystems expected to be sustained at large part by such

Document 9

9-3 |  
(con't)

return flows. We recommend that minimum limits be placed on return flows currently permitted in water ecologically sensitive and vulnerable stream segments and subwatersheds.

9-4 |

\*) In our February 23, 1999, letter the Service also recommended pursuing water conservation measures such as low flow toilets and shower heads and encouraging the use of new areas of housing units to be associated with the base.

The Service thanks you for the opportunity to comment on the Draft EIS. If there are any questions please contact Mary Orsini at (313) 490-0051.

Sincerely,  
  
for  
David C. Friedrich  
Superintendent

**THIS PAGE INTENTIONALLY LEFT BLANK**

## **APPENDIX A**

### **GLOSSARY OF TERMS, ACRONYMS, AND ABBREVIATIONS**

## APPENDIX A - GLOSSARY OF TERMS AND ACRONYMS AND ABBREVIATIONS

---

### Glossary of Terms

**Biophysical.** Pertaining to the physical and biological environment, including the environmental conditions crafted by man.

**Convey.** Transfer real estate interest through fee simple deed.

**Council of Environmental Quality (CEQ).** Established by the National Environmental Policy Act (NEPA), the CEQ consists of three members appointed by the president. CEQ regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508, as of July 1, 1986) describe the process for implementing NEPA, including preparation of environmental assessments (EAs) and environmental impact statements (EISs), and the timing and extent of public participation.

**Cumulative impact.** The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

**Employment.** The count of the number of jobs. Persons holding more than one job are counted in each job.

**Endogenous.** Produced within the system.

**Entitle.** To give (a person) the right to do something; qualify; to give to or prove a legal right to or claim on something.

**Environmental assessment (EA).** A concise public document that provides sufficient analysis for determining whether to prepare an EIS or a Finding of No Significant Impact (FONSI). This document covers all aspects of a proposed project with no foreseen environmental impacts. If an EIS is necessary, the EA can facilitate preparation of that document.

**Environmental Impact Analysis Process (EIAP).** The process of conducting environmental studies as outlined in 32 CFR Part 989.

**Environmental impact statement (EIS).** A detailed public document for which a federal agency is responsible that covers (1) the environmental impact of the Proposed Action, (2) any adverse environmental effects that cannot be avoided should the proposal be implemented, (3) alternatives to the Proposed Action, (4) the relationship between the local, short-term uses of the environment and the maintenance and enhancement of long-term productivity, and (5) any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented. The document provides a full discussion of significant environmental impacts and informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.

**Exogenous.** Introduced from or produced outside the system.



**Floodplain.** The lowland and relatively flat areas adjoining inland and coastal waters including floodprone areas of offshore islands; including, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year (100-year floodplain).

**Impacts (effects).** An assessment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective technique. In this EIS, as well as in the CEQ regulations, the word impact is used synonymously with the word effect.

**Indirect effects.** All of the economic effects not included in the exogenous (direct) change entered through policy variables for a simulation.

**Induced effects.** Economic effects resulting from the re-spending of wages (i.e., new employees have money to spend).

**Infrastructure.** The basic installations and facilities on which the continuance and growth of a local community depend (e.g., roads, schools, power plants, transportation, communication systems).

**Installation Restoration Program (IRP).** The Air Force program designed to identify, characterize, and remediate environmental contamination on Air Force installations. Although widely accepted at the time, procedures followed prior to the mid-1970s for managing and disposing of many wastes often resulted in contamination of the environment. The program has established a process to evaluate past disposal sites, control the migration of contaminants, and control potential hazards to human health and the environment. Section 211 of Superfund Amendments and Reauthorization Act (SARA), codified as the Defense Environmental Restoration Program (DERP), of which the Air Force IRP is a subset, ensures that the Department of Defense (DOD) has the authority to conduct its own environmental restoration programs. DOD coordinates IRP activities with the U.S. Environmental Protection Agency (EPA) and appropriate state agencies.

**Institutional control.** Non-engineering methods that federal, state, and local governments or private parties can utilize to prevent or limit access to, or restrict use of, property.

**Metropolitan Statistical Area.** A core area containing a large population nucleus, together with adjacent communities having a high degree of economic and social integration with that core.

**National Environmental Policy Act (NEPA).** Public Law (P.L.) 91-190, passed by Congress in 1969. NEPA established a national policy designed to encourage consideration of the influences of human activities (e.g., population growth, high-density urbanization, industrial development) on the natural environment. NEPA also established the CEQ. NEPA procedures require that environmental information be made available to the public before decisions are made. Information contained in NEPA documents must focus on the relevant issues in order to facilitate the decision-making process.

**Outgrant.** For the purposes of this document, outgrants of property may include leases, licenses, permits, or rights-of-entry.

**Personal income.** The sum of wage and salary disbursements, other labor income, proprietor's income, rental income, personal dividend income, personal interest income, and transfer payments, less personal contributions for social insurance.

**Potable water.** Water suitable for drinking.

**Scenario.** Within this EIS, a scenario is (1) not a land use plan, and (2) only identifies a number of land uses that could occur on Brooks AFB.

**Scoping.** A process initiated early during preparation of an EIS to identify the scope of issues to be addressed, including the significant issues related to the Proposed Action. During scoping, input is solicited from affected agencies as well as the interested public.

**Standard Industrial Classification.** A categorization of industries according to the 1987 Standard Industrial Classification by the Office of Management and Budget, Standard Industrial Classification Manual, 1987 (Washington, DC: U.S. Government Printing Office, 1987).

**Transfer payments.** Consist of retirement and disability insurance benefit, medical, income maintenance, unemployment insurance, and veterans benefit payments, and payments to nonprofit institutions.

**Trip generation.** A determination of the quantity of vehicle trip ends associated with a parcel of land.

**Wetlands.** Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil. This classification includes swamps, marshes, bogs, and similar areas. Jurisdictional wetlands are those wetlands that meet the hydrophytic vegetation, hydric soils, and wetland hydrology criteria under normal circumstances (or meet the special circumstances as described in the 1987 U.S. Army Corps of Engineers 1987 wetland delineation manual where one or more of these criteria may be absent and are a subset of "Waters of the United States").

**Zoning.** The division of a municipality (or county) into districts for the purpose of regulating land use, types of building, required yards, necessary off-street parking, and other prerequisites to development. Zoning districts are generally shown on a map and the text of the zoning ordinance specifies requirements for each zoning category.

**THIS PAGE INTENTIONALLY LEFT BLANK**

## Acronyms and Abbreviations

AADT	average annual daily traffic
ACM	asbestos-containing material
A.D.	Anno Domini
ADT	average daily traffic
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFI	Air Force Instruction
AFIERA	Air Force Institute for Environmental Safety and Occupational Health Risk Analysis
AFMC	Air Force Materiel Command
AFRMWO	Air Force Radioactive and Mixed Waste Office
AFRL	Air Force Research Laboratory
ASHERA	Asbestos Hazard Emergency Response Act
AOC	area of concern
APCD	Air Pollution Control District
AQHAP	Air Quality Health Alert Plan
AST	aboveground storage tank
B.C.	Before Christ
BCBP	Brooks City Base Project
bgs	below ground surface
BOS	base operating support
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAS	Central Accumulation Site
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, Recovery, and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO	carbon monoxide
CoSA	City of San Antonio
CPS	City Public Service
CPSC	Consumer Product Safety Commission
CRM	cultural resources management
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DEIS	draft environmental impact statement
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DOT	Department of Transportation
EA	environmental assessment
EBS	environmental baseline survey
EIS	environmental impact statement
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act

FAA	Federal Aviation Administration
FEIS	final environmental impact statement
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FPTA	Fire Protection Training Area
FS	feasibility study
FY	fiscal year
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HAP	hazardous air pollutant
HEB	H.E. Butt Grocery Company
HMTA	Hazardous Materials Transportation Act
hp	horsepower
HSW	Human Systems Wing
HUD	Housing and Urban Development
I	Interstate
IAP	initial accumulation point
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
kV	kilovolt
$L_{dn}$	day-night average sound level
LF	linear feet
LLRW	low-level radiation waste
LOS	level of service
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
MCF	million cubic feet
MFH	military family housing
MG	million gallons
MGD	million gallons per day
MkWH	million kilowatt hours
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSGP	multi-sector general permit
MSL	mean sea level
MW	megawatts
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Preservation
nCi/g	nanocuries per gram
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
$\text{NO}_2$	nitrogen dioxide
NOI	Notice of Intent
$\text{NO}_x$	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OSHA	Occupational Safety and Health Administration
OU	operable unit
OWS	oil/water separator
PCB	polychlorinated biphenyl

pCi/l	picocuries per liter
PEL	permissible exposure limit
PHV	peak-hour volume
P.L.	Public Law
PM <sub>10</sub>	particular matter equal to or less than 10 microns in diameter
POL	petroleum, oil, and lubricants
ppm	parts per million
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PVC	polyvinyl chloride
QRP	Qualified Recycling Program
RCRA	Resource Conservation and Recovery Act
REMI	Regional Economic Modeling, Inc.
RFI	Request for Information
RI	remedial investigation
ROD	Record of Decision
ROI	region of influence
RRS	risk reduction standard
RSO	Radiation Safety Officer
SAM	U.S. Air Force School of Aerospace Medicine
SARA	Superfund Amendments and Reauthorization Act
SAWS	San Antonio Water System
SDRH	Radiation Surveillance Division, Health Physics Branch
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SWDA	Solid Waste Disposal Act
SWPPP	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TCE	trichloroethylene
TIP	Transportation Improvement Program
TND	Traditional Neighborhood Development
TNRCC	Texas Natural Resource Conservation Commission
TOD	Transit-Oriented Design
TPDES	Texas Pollutant Discharge Elimination System
TSCA	Toxic Substances Control Act
TSP	total suspended particulates
TWA	time-weighted average
U.S. #	U.S. Highway
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
V/C	volume to capacity
VOC	volatile organic compound
WPA	Works Progress Administration
WWTP	wastewater treatment plant

**THIS PAGE INTENTIONALLY LEFT BLANK**

**APPENDIX B**

**MEMORANDUM OF UNDERSTANDING  
BETWEEN BROOKS AIR FORCE BASE  
AND THE CITY OF SAN ANTONIO**



**Memorandum of Understanding  
Between Brooks Air Force Base  
and  
The City of San Antonio**

**1. Purpose:**

The parties to this Memorandum of Understanding (MOU) are the Human Systems Center, Brooks Air Force Base and the City of San Antonio (hereafter known as the "parties"). This MOU establishes the basis for a partnership between the parties to address the roles, responsibilities, goals and objectives of each party relative to planning the future of Brooks Air Force Base. It is the vision of both parties to transform Brooks into a model base of efficiency within the Department of Defense providing a continuing source of employment, economic well being, and civic pride within the San Antonio community.

**2. Background:**

Both parties share common visions and ideas on the future of Brooks Air Force Base and towards achieving the goals and objectives of each party. The goal of the Air Force is to maximize the cost efficiency of Brooks making it economically more competitive relative to other installations. The City, represented through the Mayor's Brooks Opportunities Task Force (BOTF) established a primary goal to strengthen the value of Brooks Air Force Base to the Air Force, the Department of Defense and other national and local interests. The City's goal is to also enhance economic growth and job opportunities for the San Antonio community.

**3. Brooks AFB and the City's (BOTF) Objectives:**

Brooks AFB objectives are:

- Reducing infrastructure support costs for Air Force mission activities
- Preserving Brooks' vital military missions
- Creating partnerships with federal and state agencies and the private sector
- Introducing activities that are compatible with Brooks' focus on aerospace medicine, education, the environment and human performances
- Being good stewards of the taxpayer's money

The objectives of the City (BOTF) are to work with Brooks Air Force Base to:

- Explore ways to increase job opportunities at Brooks and in the surrounding community to stimulate economic growth and development
- Develop options for expanding the use of Brooks' scientific and technical facilities
- Explore alternatives for helping Brooks reduce its base operating support costs
- Examine ways to attract more research development and testing activities to Brooks from other branches of the armed services, private industry, public institutions, and other public-private ventures
- Encourage greater collaboration between Brooks' research and teaching activities with community organizations engaged in similar activities
- Formulate plans to maximize the development of real estate on and around Brooks


#### 4. Establishment of a Partnership Between the Parties:

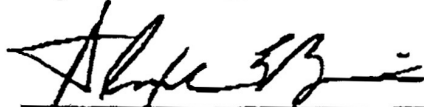
The parties agree it is in their mutual interest to establish and formalize a partnership. The parties agree to meet regularly to foster communication and develop action plans to implement goals and objectives. The Mayor will extend an invitation for a Brooks AFB representative to join the Task Force. The Human Systems Center will extend an invitation for a representative of the BOTF to join the Brooks planning team.


At future meetings between the parties, the focus will be to identify common goals and objectives. The parties agree to: (1) develop action plans; (2) set a timeline for implementing specific actions; and (3) to establish a common framework for sharing ideas and developing innovative solutions to mutual challenges.

Through this MOU, the parties dedicate themselves to be proactive, timely and constructive in their cooperative efforts.

Signed on February 10, 1998

  
Howard W. Peak  
MAYOR  
City of San Antonio

  
Alexander E. Briseño  
City Manager  
City of San Antonio

  
John G. Jernigan  
Brigadier General, USAF, MC, CSS  
Commander, Human Systems Center

## **APPENDIX C**

### **AIR FORCE CONCEPT APPROVAL LETTER**



SECRETARY OF THE AIR FORCE  
WASHINGTON

FEB 29 2000

MEMORANDUM FOR HQ AFMC/CC

SUBJECT: AFMC Concept Approval for Brooks Base Efficiency Project  
(Your Memo, 2 Feb 00)

The proposed concept to implement the Brooks Base Efficiency Project is approved, with modifications (Atch). The planning process you put in place will be critical to the success of the demonstration project at Brooks AFB.

As you are well aware, this project has high level visibility within DoD and Congress. Future opportunities to improve mission effectiveness and cost reduction at our installations will be determined by the success of this demonstration project.

A handwritten signature in black ink, appearing to read "F. B. Whitaker", is located to the right of the main text.

Attachment:  
Concept for Implementing the Brooks Base  
Efficiency Project

cc:  
SAF/GC/MI/MII  
HQ USAF/CC/IL/ILE

**THIS PAGE INTENTIONALLY LEFT BLANK**

# CONCEPT FOR IMPLEMENTING THE BROOKS BASE EFFICIENCY PROJECT AT BROOKS AIR FORCE BASE, TEXAS

---

## INTRODUCTION

The FY00 Defense Appropriations Bill, 24 Oct 99, Section 8168 gave the Secretary of the Air Force authority to carry out a demonstration project at Brooks Air Force Base (BAFB) Texas to improve mission effectiveness and reduce the cost of providing quality installation support. At the broad level, this legislation gives the Secretary expanded authority to enter into agreements to sell, lease, or otherwise convey base property to a public or private party. In addition, it relieves this demonstration from some federal property statutes, establishes a project fund for capturing and expending revenues, and simplifies reporting requirements to Congress. Subsection (n) restricts these authorities from taking effect until 15 Jun 00, and the authority to enter into new agreements expires on 30 Sep 04. This paper outlines the proposed concept for the demonstration project.

## SUMMARY OF STRATEGY

The Air Force intends to pursue conveyance of the entire BAFB real property to the City of San Antonio and leaseback of required facilities. This strategy appears to be cost effective and most advantageous to both the community and the Air Force. Because the desired BAFB end state is a thriving bio-science/academic/environmental technical center of excellence in the southeast quadrant of San Antonio, future development of the 500 acres of undeveloped land is both desired and encouraged. Therefore, as one of the terms of conveyance, the Air Force will require the City of San Antonio to competitively select a third party real property developer for the further development of the base and require the City to use the Air Force as an advisor during this process. The Air Force anticipates municipal services at no cost, a share of future development revenues, and other compensation from the City of San Antonio as fair market value compensation for base property. By giving the City of San Antonio the "right of first refusal" to the BAFB property, the Air Force intends to enter into exclusive and detailed negotiations with the City before pursuing other approaches. If, during these negotiations or at anytime prior to final conveyance, either party decides to terminate this course of action, the Air Force then will pursue a separate transaction directly with a third party developer through a competitive process to fulfill the intentions of the demonstration project.

## RATIONALE

The *AFMC Special Study for Brooks Air Force Base* responded to a request by Congress and direction by the Secretary of the Air Force to identify ways to substantially reduce BAFB base operating costs. The study concluded that the most advantageous option for the Air Force would be to transfer ownership of BAFB to the City of San Antonio and lease back those facilities needed to perform the missions of the base. In return for base property, the City would provide various services to the Air Force. And, in the event of future development, both the Air Force and the City would share in downstream revenues. This win-win arrangement would benefit the City through sale and lease of property to the private sector and through an expanded tax base. It would benefit the Air Force through greatly reduced operating costs and through an enhanced physical environment, populated by high tech businesses.

Notes: February 2000 version from AFMC/CC.  
Edited against the Secretary of the Air Force "approved" document (February 29, 2000).

Discussions with BAFB leaders, the results of the Special Study, and congressional interest in turn sparked great interest in the City. The Mayor of San Antonio appointed an independent advisory committee to determine the economic feasibility of a “city base”. On 4 Nov 99 the San Antonio City Council unanimously approved the committee’s final report. The committee analyses supported the conclusions of the Special Study and confirmed the feasibility of a “city base” concept. The recommendations to “aggressively pursue negotiations with the Air Force on the city base”, and “retain a third party developer through competition” indicated to the Air Force that the City was serious in its interest. Because studies on both sides agree that this course of action appears sound, and frank exchanges between City and Air Force leadership indicate serious intentions, the Air Force believes pursuing exclusive negotiations with the City is most prudent.

In addition, the Air Force has analyzed proposed timelines for implementation that indicate the conveyance and leaseback option with the City would produce the most immediate savings to the Air Force in base operating support costs. Upon final conveyance, the City could begin immediately to initiate transfer of municipal services. Under a conveyance option to the third party, the competitive process for selection would be lengthier, delaying the assumption of services and reducing savings. The City also has indicated informally its intention to provide favorable zoning and economic incentives to speed development at BAFB.

Finally, there is an intangible advantage to entering into exclusive negotiations with the City of San Antonio. City management has stated repeatedly that it very much wants to help the Air Force reduce costs and increase high-tech jobs at BAFB. City management also has stated publicly that it is interested in acquiring the base. BAFB is located in an economically challenged area of the City, and community leaders intend to use this acquisition to spur economic development across this historically neglected southeast corridor. The City’s interest, dedication to the Air Force, and commitment to renewed development are intangible benefits that cannot be underestimated. Thus, the Air Force should acknowledge the benefits of this partnership and choose to deal first with the City under an exclusive arrangement. San Antonio is committed to working both with and for the Air Force.

## **CRITERIA FOR SUCCESS**

As the Air Force begins to plan for negotiations with the City of San Antonio for conveyance and leaseback, we must first know what the Air Force requires for this deal to be considered a success. Because the Brooks Base Efficiency Project is a pilot project, we are mindful of the responsibility to produce transferable lessons from this project for other DoD installations. The Air Force also seeks to make this process as transparent as possible to the BAFB population, Air Force leadership, and Congress so that it can be thoroughly examined throughout development and implementation. The Brooks Base Efficiency Project has the publicly stated goal to maintain, if not improve, mission effectiveness while reducing costs.

## **NEXT STEPS**

The Air Force intends to begin now the planning activities necessary before the Brooks Base Efficiency Project begins on 15 Jun 00. The planning phase begins with defining mission organization organic and support requirements and capturing, in greater detail than before, the Quality of Life services, municipal services, and costs of all activities on BAFB to support those missions. As a first step, the Air Force will develop an improved inventory of all facility space at Brooks. From this foundational data, BAFB can

Notes: February 2000 version from AFMC/CC.  
Edited against the Secretary of the Air Force “approved” document (February 29, 2000).

develop current and foreseeable future mission requirements for facilities and land use that would be the cornerstone in future negotiations.

In addition, the Air Force intends to publish two Requests for Information to solicit interest from the private and public sector in BAFB real property development and in mission enhancing partnerships. These responses will give Brooks and the City indications of the feasibility and desirability of specific options and help shape the future under this project.

Planning activities to gather the needed factual information can begin in conjunction with the City of San Antonio. Future negotiations will be more productive and move quickly, if both parties begin from a common baseline. The Air Force will not compromise its future negotiating position by these joint activities. Procuring some necessary documents together, such as a legal description of the property, is cost effective, time saving and prudent. The Air Force also will begin immediately the Environmental Impact Analysis Process (EIAP).

## **RECOMMENDATION**

Approve the concept for implementing this demonstration project: The Brooks Base Efficiency Project can begin a strategy to exclusively convey the entire BAFB real property to the City of San Antonio and leaseback the required facilities to accomplish the mission. The Air Force specifically seeks approval to undertake the following planning activities that should occur before 15 Jun 00:

- Develop AF criteria for project success
- Develop facility space, Quality of Life, and municipal service baselines
- Begin the EIAP and land-use plan
- Release of two Request for Information announcements to solicit interest from potential mission partners and real property developers
- Define the Project Fund process
- Develop a format for the Annual Report to Congress, due March of each year.
- Develop Air Force coordination/approval chain for all activities related to this project

Notes: February 2000 version from AFMC/CC.  
Edited against the Secretary of the Air Force "approved" document (February 29, 2000).



**THIS PAGE INTENTIONALLY LEFT BLANK**

**APPENDIX D**  
**PUBLIC LAWS**

## **APPENDIX D - PUBLIC LAWS**

---

In October 1999, Congress passed legislation (Fiscal Year 2000 Defense Appropriations Act, Section 8168, Public Law 106-79), known as the Base Efficiency Project, allowing the Air Force to conduct a demonstration project at Brooks Air Force Base. Subsequently, in July 2000, Congress passed legislation (Fiscal Year 2001, Defense Appropriations Act, Section 136, P.L. 106-246), which supercedes P.L. 106-79. This appendix contains copies of relevant sections of Public Laws 106-79 and 106-246.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# **PUBLIC LAW 106-79**

---

PL 106-79, 1999 HR 2561

PL 106-79, October 25, 1999, 113 Stat 1212

**(Cite as: 113 Stat 1212)**

## **UNITED STATES PUBLIC LAWS**

**106th Congress - First Session**

**Convening January 27, 1999**

Copr. © West Group 1999. No Claim to Orig. U.S. Govt. Works

Additions and Deletions are not identified in this database.

Vetoed provisions within tabular material are not displayed

PL 106-79 (HR 2561)

October 25, 1999

### **APPROPRIATIONS, 2000--DEPARTMENT OF DEFENSE**

An Act making appropriations for the Department of Defense for the fiscal year ending September 30, 2000, and for other purposes.

**SEC. 8168.** (a) **PURPOSE.**--The purpose of this section is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less-costly base support services, where available.

(b) **AUTHORITY.**--(1) The Secretary of the Air Force may carry out at Brooks Air Force Base, Texas, a demonstration project to be known as the "Base Efficiency Project" to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks Air Force Base.

(2) The Secretary may carry out the Project in consultation with the Community to the extent the Secretary determines such consultation is necessary and appropriate.

(3) The authority provided in this section is in addition to any other authority vested in or delegated to the Secretary, and the Secretary may exercise any authority or combination of authorities provided under this section or elsewhere to carry out the purposes of the Project.

(c) **EFFICIENT PRACTICES.**--(1) The Secretary may convert services at or for the benefit of the Base from accomplishment by military personnel or by Department civilian employees (appropriated fund or non-appropriated fund), to services performed by contract or provided as consideration for the lease, sale, or other conveyance or transfer of property.

(2) Notwithstanding section 2462 of title 10, United States Code, a contract for services may be awarded based on "best value" if the Secretary determines that the award will advance the purposes of a joint activity conducted under the Project and is in the best interest of the Department.

(3) Notwithstanding that such services are generally funded by local and State taxes and provided without specific charge to the public at large, the Secretary may contract for public services at or for the benefit of the Base in exchange for such consideration, if any, the Secretary determines to be appropriate.

(4)(A) The Secretary may conduct joint activities with the Community, the State, and any private parties or entities on or for the benefit of the Base.

(B) Payments or reimbursements received from participants for their share of direct and indirect costs of joint activities, including the costs of providing, operating, and maintaining facilities, shall be in an amount and type determined to be adequate and appropriate by the Secretary.

(C) Such payments or reimbursements received by the Department shall be deposited into the Project Fund.

(d) LEASE AUTHORITY.--(1) The Secretary may lease real or personal property located on the Base and not required at other Air Force installations to any lessee upon such terms and conditions as the Secretary considers appropriate and in the interest of the United States, if the Secretary determines that the lease would facilitate the purposes of the Project.

(2) Consideration for a lease under this subsection shall be determined in accordance with subsection (g).

(3) A lease under this subsection--

**\*1278** (A) may be for such period as the Secretary determines is necessary to accomplish the goals of the Project; and

(B) may give the lessee the first right to purchase the property at fair market value if the lease is terminated to allow the United States to sell the property under any other provision of law.

(4)(A) The interest of a lessee of property leased under this subsection may be taxed by the State or the Community.

(B) A lease under this subsection shall provide that, if and to the extent that the leased property is later made taxable by State governments or local governments under Federal law, the lease shall be renegotiated.

(5) The Department may furnish a lessee with utilities, custodial services, and other base operation, maintenance, or support services performed by Department civilian or contract employees, in exchange for such consideration, payment, or reimbursement as the Secretary determines appropriate.

(6) All amounts received from leases under this subsection shall be deposited into the Project Fund.

(7) A lease under this subsection shall not be subject to the following provisions of law:

(A) Section 2667 of title 10, United States Code, other than subsection (b)(1) of that section.

(B) Section 321 of the Act of June 30, 1932 (40 U.S.C. 303b).

(C) The Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.).

(e) PROPERTY DISPOSAL.--(1) The Secretary may sell or otherwise convey or transfer real and personal property located at the Base to the Community or to another public or private party during the Project, upon such terms and conditions as the Secretary considers appropriate for purposes of the Project.

(2) Consideration for a sale or other conveyance or transfer of property under this subsection shall be determined in accordance with subsection (g).

(3) The sale or other conveyance or transfer of property under this subsection shall not be subject to the following provisions of law:

(A) Section 2693 of title 10, United States Code.

(B) The Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.).

(4) Cash payments received as consideration for the sale or other conveyance or transfer of property under this subsection shall be deposited into the Project Fund.

(f) LEASEBACK OF PROPERTY LEASED OR DISPOSED.--(1) The Secretary may lease, sell, or otherwise convey or transfer real property at the Base under subsections (b) and (e), as applicable, which will be retained for use by the Department or by another military department or other Federal agency, if the lessee, purchaser, or other grantee or transferee of the property agrees to enter into a leaseback to the Department in connection with the lease, sale, or other conveyance or transfer of one or more portions or all of the property leased, sold, or otherwise conveyed or transferred, as applicable.

(2) A leaseback of real property under this subsection shall be an operating lease for no more than 20 years unless the Secretary of the Air Force determines that a longer term is appropriate.

**\*1279** (3)(A) Consideration, if any, for real property leased under a leaseback entered into under this subsection shall be in such form and amount as the Secretary considers appropriate.

(B) The Secretary may use funds in the Project Fund or other funds appropriated or otherwise available to the Department for use at the Base for payment of any such cash rent.

(4) Notwithstanding any other provision of law, the Department or other military department or other Federal agency using the real property leased under a leaseback entered into under this subsection may construct and erect facilities on or otherwise improve the leased property using funds appropriated or otherwise available to the Department or other military department or other Federal agency for such purpose.

(g) CONSIDERATION.--(1) The Secretary shall determine the nature, value, and adequacy of consideration required or offered in exchange for a lease, sale, or other conveyance or transfer of real or personal property or for other actions taken under the Project.

(2) Consideration may be in cash or in-kind or any combination thereof. In-kind consideration may include the following:

(A) Real property.

(B) Personal property.

(C) Goods or services, including operation, maintenance, protection, repair, or restoration (including environmental restoration) of any property or facilities (including non-appropriated fund facilities).

(D) Base operating support services.

(E) Improvement of Department facilities.

(F) Provision of facilities, including office, storage, or other usable space, for use by the Department on or off the Base.

(G) Public services.

(3) Consideration may not be for less than the fair market value.

(h) PROJECT FUND.--(1) There is established on the books of the Treasury a fund to be known as the "Base Efficiency Project Fund" into which all cash rents, proceeds, payments, reimbursements, and other amounts from leases, sales, or other conveyances or transfers, joint activities, and all other actions taken under the Project shall be deposited. All amounts deposited into the Project Fund are without fiscal year limitation.

(2) Amounts in the Project Fund may be used only for operation, base operating support services, maintenance, repair, or improvement of Department facilities, payment of consideration for acquisitions of interests in real property (including payment of rentals for leasebacks), and environmental protection or restoration, in addition to or in combination with other amounts appropriated for these purposes.

(3) Subject to generally prescribed financial management regulations, the Secretary shall establish the structure of the Project Fund and such administrative policies and procedures as the Secretary considers necessary to account for and control deposits into and disbursements from the Project Fund effectively.

(4) All amounts in the Project Fund shall be available for use for the purposes authorized in paragraph (2) at the Base.

(i) FEDERAL AGENCIES.--(1)(A) Any Federal agency, its contractors, or its grantees shall pay rent, in cash or services, for the \*1280 use of facilities or property at the Base, in an amount and type determined to be adequate by the Secretary.

(B) Such rent shall generally be the fair market rental of the property provided, but in any case shall be sufficient to compensate the Base for the direct and overhead costs incurred by the Base due to the presence of the tenant agency on the Base.

(2) Transfers of real or personal property at the Base to other Federal agencies shall be at fair market value consideration. Such consideration may be paid in cash, by appropriation transfer, or in property, goods, or services.

(3) Amounts received from other Federal agencies, their contractors, or grantees, including any amounts paid by appropriation transfer, shall be deposited in the Project Fund.

(j) REPORTS TO CONGRESS.--(1) Section 2662 of title 10, United States Code, shall not apply to transactions at the Base during the Project.



(2)(A) Not later than March 1 each year, the Secretary shall submit to the appropriate committees of the Congress a report on any transactions at the Base during the preceding fiscal year that would be subject to such section 2662.

(B) The report shall include a detailed cost analysis of the financial savings and gains realized through joint activities and other actions under the Project authorized by this section and a description of the status of the Project.

(k) LIMITATION.--None of the authorities in this section shall create any legal rights in any person or entity except rights embodied in leases, deeds, or contracts.

(l) EXPIRATION OF AUTHORITY.--The authority to enter into a lease, deed, permit, license, contract, or other agreement under this section shall expire on September 30, 2004.

(m) DEFINITIONS.--In this section:

(1) The term "Project" means the Base Efficiency Project authorized by this section.

(2) The term "Base" means Brooks Air Force Base, Texas.

(3) The term "Community" means the City of San Antonio, Texas.

(4) The term "Department" means the Department of the Air Force.

(5) The term "facility" means a building, structure, or other improvement to real property (except a military family housing unit as that term is used in subchapter IV of chapter 169 of title 10, United States Code).

(6) The term "joint activity" means an activity conducted on or for the benefit of the Base by the Department, jointly with the Community, the State, or any private entity, or any combination thereof.

(7) The term "Project Fund" means the Base Efficiency Project Fund established by subsection (h).

(8) The term "public services" means public services (except public schools, fire protection, and police protection) that are funded by local and State taxes and provided without specific charge to the public at large.

(9) The term "Secretary" means the Secretary of the Air Force or the Secretary's designee, who shall be a civilian official of the Department appointed by the President with the advice and consent of the Senate.

(10) The term "State" means the State of Texas.

**\*1281** (n) The authorities provided in this section shall not take effect until June 15, 2000.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# PUBLIC LAW 106-246

---

PL 106-246, 2000 HR 4425

PL 106-246, July 13, 2000, 114 Stat 511

## UNITED STATES PUBLIC LAWS 106th Congress

PL 106-246 (HR 4425)

July 13, 2000

### APPROPRIATIONS, 2001--DEPARTMENT OF DEFENSE

An Act making appropriations for the Department of Defense for the fiscal year ending September 30, 2001, and for other purposes.

**Sec. 136.** (a) **PURPOSE.**--The purpose of this section is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less-costly base support services, where available. The section supersedes, and shall be used in lieu of the authority provided in, section 8168 of the Department of Defense Appropriations Act, 2000 (Public Law 106-79; 113 Stat. 1277).

(b) **AUTHORITY.**--(1) Subject to paragraph (4), the Secretary of the Air Force may carry out at Brooks Air Force Base, Texas, a demonstration project to be known as the ``Base Efficiency Project" to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks Air Force Base.

(2) The Secretary may carry out the Project in consultation with the Community to the extent the Secretary determines such consultation is necessary and appropriate.

(3) The authority provided in this section is in addition to any other authority vested in or delegated to the Secretary, and the Secretary may exercise any authority or combination of authorities provided under this section or elsewhere to carry out the purposes of the Project.

(4) The Secretary may not exercise any authority under this section until after the end of the 30-day period beginning on the date the Secretary submits to the appropriate committees of the Congress a master plan for the development of the Base.

(c) **EFFICIENT PRACTICES.**--(1) The Secretary may convert services at or for the benefit of the Base from accomplishment by military personnel or by Department civilian employees (appropriated fund or non-appropriated fund), to services performed by contract or provided as consideration for the lease, sale, or other conveyance or transfer of property.

(2) Notwithstanding section 2462 of title 10, United States Code, a contract for services may be awarded based on ``best value" if the Secretary determines that the award will advance the purposes of a joint activity conducted under the project and is in the best interest of the Department.

(3) Notwithstanding that such services are generally funded by local and State taxes and provided without specific charge to the public at large, the Secretary may contract for public services at or for the benefit of the Base in exchange for such consideration, if any, the Secretary determines to be appropriate.

(4)(A) The Secretary may conduct joint activities with the Community, the State, and any private parties or entities on or for the benefit of the Base.

(B) Payments or reimbursements received from participants for their share of direct and indirect costs of joint activities, including the costs of providing, operating, and maintaining facilities, shall be in an amount and type determined to be adequate and appropriate by the Secretary.

(C) Such payments or reimbursements received by the Department shall be deposited into the Project Fund.

(d) LEASE AUTHORITY.--(1) The Secretary may lease real or personal property located on the Base and not required at other Air Force installations to any lessee upon such terms and conditions as the Secretary considers appropriate and in the interest of the United States, if the Secretary determines that the lease would facilitate the purposes of the Project.

(2) Consideration for a lease under this subsection shall be determined in accordance with subsection (g).

(3) A lease under this subsection--

(A) may be for such period as the Secretary determines is necessary to accomplish the goals of the Project; and

(B) may give the lessee the first right to purchase the property at fair market value if the lease is terminated to allow the United States to sell the property under any other provision of law.

(4)(A) The interest of a lessee of property leased under this subsection may be taxed by the State or the Community.

(B) A lease under this subsection shall provide that, if and to the extent that the leased property is later made taxable by State governments or local governments under Federal law, the lease shall be renegotiated.

(5) The Department may furnish a lessee with utilities, custodial services, and other base operation, maintenance, or support services performed by Department civilian or contract employees, in exchange for such consideration, payment, or reimbursement as the Secretary determines appropriate.

(6) All amounts received from leases under this subsection shall be deposited into the Project Fund.

(7) A lease under this subsection shall not be subject to the following provisions of law:

(A) Section 2667 of title 10, United States Code, other than subsection (b)(1) of that section.

(B) Section 321 of the Act of June 30, 1932 (40 U.S.C. 303b).

(C) The Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.).

(e) PROPERTY DISPOSAL.--(1) The Secretary may sell or otherwise convey or transfer real and personal property located at the Base to the Community or to another public or private party during the Project, upon such terms and conditions as the Secretary considers appropriate for purposes of the Project.

(2) Consideration for a sale or other conveyance or transfer of property under this subsection shall be determined in accordance with subsection (g).

(3) The sale or other conveyance or transfer of property under this subsection shall not be subject to the following provisions of law:

(A) Section 2693 of title 10, United States Code.

(B) The Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.).

(4) Cash payments received as consideration for the sale or other conveyance or transfer of property under this subsection shall be deposited into the Project Fund.

(f ) LEASEBACK OF PROPERTY LEASED OR DISPOSED.--(1) The Secretary may lease, sell, or otherwise convey or transfer real property at the Base under subsections (b) and (e), as applicable, which will be retained for use by the Department or by another military department or other Federal agency, if the lessee, purchaser, or other grantee or transferee of the property agrees to enter into a leaseback to the Department in connection with the lease, sale, or other conveyance or transfer of one or more portions or all of the property leased, sold, or otherwise conveyed or transferred, as applicable.

(2) A leaseback of real property under this subsection shall be an operating lease for no more than 20 years unless the Secretary of the Air Force determines that a longer term is appropriate.

(3)(A) Consideration, if any, for real property leased under a leaseback entered into under this subsection shall be in such form and amount as the Secretary considers appropriate.

(B) The Secretary may use funds in the Project Fund or other funds appropriated or otherwise available to the Department for use at the Base for payment of any such cash rent.

(4) Notwithstanding any other provision of law, the Department or other military department or other Federal agency using the real property leased under a leaseback entered into under this subsection may construct and erect facilities on or otherwise improve the leased property using funds appropriated or otherwise available to the Department or other military department or other Federal agency for such purpose.

(g) CONSIDERATION.--(1) The Secretary shall determine the nature, value, and adequacy of consideration required or offered in exchange for a lease, sale, or other conveyance or transfer of real or personal property or for other actions taken under the Project.

(2) Consideration may be in cash or in-kind or any combination thereof. In-kind consideration may include the following:

(A) Real property.

(B) Personal property.

(C) Goods or services, including operation, maintenance, protection, repair, or restoration (including environmental restoration) of any property or facilities (including non-appropriated fund facilities).

(D) Base operating support services.

(E) Improvement of Department facilities.

(F) Provision of facilities, including office, storage, or other usable space, for use by the Department on or off the Base.

(G) Public services.

(3) Consideration may not be for less than the fair market value.

(h) PROJECT FUND.--(1) There is established on the books of the Treasury a fund to be known as the "Base Efficiency Project Fund" into which all cash rents, proceeds, payments, reimbursements, and other amounts from leases, sales, or other conveyances or transfers, joint activities, and all other actions taken under the Project shall be deposited. Subject to paragraph (2), amounts deposited into the Project Fund shall be available without fiscal year limitation.

(2) To the extent provided in advance in appropriations Acts, amounts in the Project Fund shall be available to the Secretary for use at the base only for operation, base operating support services, maintenance, repair, or improvement of Department facilities, payment of consideration for acquisitions of interests in real property (including payment of rentals for leasebacks), and environmental protection or restoration. The use of such amounts may be in addition to or in combination with other amounts appropriated for these purposes.

(3) <<NOTE: Procedures.>> Subject to generally prescribed financial management regulations, the Secretary shall establish the structure of the Project Fund and such administrative policies and procedures as the Secretary considers necessary to account for and control deposits into and disbursements from the Project Fund effectively.

(i) FEDERAL AGENCIES.--(1)(A) Any Federal agency, its contractors, or its grantees shall pay rent, in cash or services, for the use of facilities or property at the Base, in an amount and type determined to be adequate by the Secretary.

(B) Such rent shall generally be the fair market rental of the property provided, but in any case shall be sufficient to compensate the Base for the direct and overhead costs incurred by the Base due to the presence of the tenant agency on the Base.

(2) Transfers of real or personal property at the Base to other Federal agencies shall be at fair market value consideration. Such consideration may be paid in cash, by appropriation transfer, or in property, goods, or services.

(3) Amounts received from other Federal agencies, their contractors, or grantees, including any amounts paid by appropriation transfer, shall be deposited in the Project Fund.

(j) <<NOTE: Applicability.>> Reports to Congress.--(1) Section 2662 of title 10, United States Code, shall apply to transactions at the Base during the Project.

(k) LIMITATION.--None of the authorities in this section shall create any legal rights in any person or entity except rights embodied in leases, deeds, or contracts.

(l) EXPIRATION OF AUTHORITY.--The authority to enter into a lease, deed, permit, license, contract, or other agreement under this section shall expire on June 1, 2005.

(m) DEFINITIONS.--In this section:

(1) The term ``Project" means the Base Efficiency Project authorized by this section.

(2) The term ``Base" means Brooks Air Force Base, Texas.

(3) The term ``Community" means the City of San Antonio, Texas.

(4) The term ``Department" means the Department of the Air Force.

(5) The term ``facility" means a building, structure, or other improvement to real property (except a military family housing unit as that term is used in subchapter IV of chapter 169 of title 10, United States Code).

(6) The term ``joint activity" means an activity conducted on or for the benefit of the Base by the Department, jointly with the Community, the State, or any private entity, or any combination thereof.

(7) The term ``Project Fund" means the Base Efficiency Project Fund established by subsection (h).

(8) The term ``public services" means public services (except public schools, fire protection, and police protection) that are funded by local and State taxes and provided without specific charge to the public at large.

(9) The term ``Secretary" means the Secretary of the Air Force or the Secretary's designee, who shall be a civilian official of the Department appointed by the President with the advice and consent of the Senate.

(10) The term ``State" means the State of Texas.

(n) Effective Date.--This section becomes effective immediately upon enactment of this Act.

**THIS PAGE INTENTIONALLY LEFT BLANK**



**APPENDIX E**  
**NOTICE OF INTENT**

## APPENDIX E - NOTICE OF INTENT

---

The following Notice of Intent was circulated and published by the Air Force in the June 16, 2000, Federal Register in order to provide public notice of the Air Force's intent to prepare an environmental impact statement for the Brooks City Base Project. This Notice of Intent has been retyped for clarity and legibility.

**THIS PAGE INTENTIONALLY LEFT BLANK**

**NOTICE OF INTENT  
TO PREPARE AN  
ENVIRONMENTAL IMPACT STATEMENT  
FOR THE BROOKS CITY BASE PROJECT  
BROOKS AIR FORCE BASE, TEXAS**

The United States Air Force is issuing this notice to advise the public of its intention to prepare an Environmental Impact Statement (EIS) for the Brooks City Base Project (BCBP). The EIS will be prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321, et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989). The BCBP is authorized under the provisions of the Fiscal Year 2000 Defense Appropriations Act, Public Law 106-79, Section 8168. It is intended to improve mission effectiveness and asset management and reduce the cost of providing quality installation support services at Brooks Air Force Base (AFB). Under the BCBP, the Air Force proposes to convey all or portions of the approximately 1,310 acres of base real property to the City of San Antonio or other public or private entity and lease back those facilities required to support the continuing Air Force mission. The City of San Antonio or other entity would develop available portions of the base property in a manner that is not inconsistent with continuing Brooks AFB mission activities.

The EIS will address the potential environmental impacts associated with the proposed BCBP. The Proposed Action is a transfer/leaseback of Brooks AFB property. Alternatives include Air Force outgrant of portions of the base, under which the Air Force would retain ownership, and the no-action alternative, under which the BCBP would not be implemented. The analysis will examine the reasonably foreseeable environmental consequences of the Proposed Action and alternatives under several different land use scenarios.

To provide a forum for public officials and the community to provide information and comments on the project, the Air Force will hold a public scoping meeting in San Antonio at the following location near Brooks AFB:

<u>DATE</u>	<u>LOCATION</u>	<u>TIME</u>
July 12, 2000	Slattery Hall 9006 Villamain Road San Antonio, Texas 78223	7:00 p.m. - 9:00 p.m.

Notice of the time and location of the meeting will also be announced in local newspapers. The purpose of the meeting is to: (1) identify the environmental issues and concerns that should be analyzed; (2) solicit comments on the Proposed Action and alternatives; and (3) solicit potential alternatives to the Proposed Action. In soliciting information on potential alternatives, the Air Force will consider reasonable alternatives offered during the public scoping period, currently scheduled to continue through August 4, 2000.

To ensure sufficient time to adequately consider public input concerning environmental issues and alternatives to be included in the EIS, the Air Force recommends that comments be forwarded to the address listed below by the end of the public scoping period. The Air Force will, however, accept additional comments at any time during the environmental impact analysis process.

Please direct written comments or requests for further information concerning the BCBP EIS to Mr. Jonathan D. Farthing, HQ AFCEE/ECA, 3207 North Road, Brooks Air Force Base, Texas, 78235-5363, (210) 536-3668.

**THIS PAGE INTENTIONALLY LEFT BLANK**

**APPENDIX F**

**FINAL ENVIRONMENTAL IMPACT STATEMENT  
MAILING LIST**

**APPENDIX F  
FINAL ENVIRONMENTAL IMPACT STATEMENT  
MAILING LIST**

**Elected Officials - Federal**

U.S. Senate

The Honorable Phil Gramm

The Honorable Kay Bailey Hutchinson

U.S. House of Representatives

The Honorable Ciro Rodriguez, District 28

The Honorable Charles Gonzales, District 20

**Elected Officials - State of Texas**

Senate

The Honorable Frank Madla, District 29

House of Representatives

The Honorable Carlos Uresti, District 118

**Elected Officials - Local**

The Honorable Debra Guerrero  
City Councilwoman, City of San Antonio

The Honorable Howard Peak  
Mayor, City of San Antonio

**Federal Agencies**

Advisory Council on Historic Preservation

Federal Emergency Management Agency  
Office of Environment and Energy

U.S. Department of the Interior  
Bureau of Indian Affairs

U.S. Department of the Interior  
Office of Environmental Policy and Compliance

U.S. Environmental Protection Agency  
Office of Federal Activities

## **Regional Offices of Federal Agencies**

Inter-Tribal Council of American Indians

National Park Service

U.S. Department of the Interior  
Fish and Wildlife Service

U.S. Environmental Protection Agency, Region 6

## **State Agencies**

Alamo Area Council of Governments

Edwards Aquifer Authority

Governor's Budgeting and Planning Office

Texas Historical Commission, State Historic Preservation Officer  
Architecture, Archaeology, and Local History Programs

Texas Natural Resources Conservation Commission

## **County Agencies**

Bexar County Metropolitan Planning Organization

Bexar County Planning and Resource Management

Bexar County Public Works Department

## **Local Government Agencies**

City of San Antonio  
Economic Development Department

City of San Antonio  
City Manager

City Public Service

San Antonio Water System

## **Environmental Justice Outreach**

Communities Organized for Public Service

La Prensa

LULAC (Council and Director)

Neighborhood Resource Center

Raymond Hernandez



**Other Organizations/Individuals**

Santa Garza

Mickey Killian

Luis R. Rivas

Henry Troutz

David Wasicek

Arthur J. Yoggerst

American Federation of Government Employees, Local 1757

Brooks Heritage Foundation, Inc.

CH2M Hill

Charis Corporation

Frontline Systems

Greater San Antonio Chamber of Commerce

HDR/Simpson

Highland Hills Neighborhood Association

Highland Park Neighborhood Association

International Association of Firefighters, Local F-89

Los Compadres de San Antonio Mission

Mission San Jose Neighborhood Association

Mission San Juan Capistrano

Providence Commercial Real Estate

Providence Weitzman Group

Los Vecinos De Las Mission

Restoration Advisory Board

San Antonio Business Journal

San Antonio Conservation Society

San Antonio Express-News

San Antonio Hispanic Chamber of Commerce

**Other Organizations/Individuals (continued)**

Southeast Citizens Committee

Southside Chamber of Commerce

Southside Reporter

Southwestern Bell

**Other Organizations/Individuals (Continued)**

Stinson Airport

Providence Weitzman Group

**Libraries**

Monographs Acquisition Service, Colorado State University Libraries

San Antonio Public Library, Downtown

San Antonio Public Library, McCreless Branch

**APPENDIX G**  
**METHODS OF ANALYSIS**

## **APPENDIX G**

### **METHODS OF ANALYSIS**

This section describes the methods and techniques used in preparation of the Brooks City Base Project (BCBP) environmental impact statement (EIS). The methods were designed and implemented to evaluate the potential environmental impacts associated with implementation of the Proposed Action and alternatives. The Proposed Action and alternatives analyzed in this EIS were developed based on input from the Air Force, the City of San Antonio (CoSA), and other local agencies and organizations.

The various analysis methods used during preparation of this EIS are summarized in this appendix. General methods applicable to preparation of the EIS, as a whole, are described in Chapter 1.0. Chapter 2.0 describes specific methods applicable to preparation of the Description of Proposed Action and Alternatives (DOPAA) (Section 2.1) and for individual resource areas (Sections 2.2 through 2.6).

#### **1.0 GENERAL METHODS**

##### **Region of Influence**

A region of influence (ROI) was defined for each resource area pertinent to the Proposed Action and alternatives. The ROI determined the geographical area addressed as the Affected Environment in Chapter 3.0 of the EIS. Although the base boundary constituted the ROI limit for many resources, potential impacts associated with certain issues (e.g., air quality) often transcended these limits. ROIs were carefully delineated to allow an accurate analysis that provides the basis for Air Force decision making regarding the BCBP. The following criteria were used for ROI definition:

- Boundaries were assigned that reflected the true geographical limit of the specific resource (e.g., the total habitat zone for an endangered species).
- Areas were defined that encompassed all potential impacts without creating a larger than necessary study area.
- Contexts were provided to allow regional analyses, where appropriate.

The delineation of an ROI is closely tied to the data collection process and tends to be resource-specific. Further details regarding ROIs are presented within the methods discussions for each resource area.

##### **Baseline or Reference Point Establishment**

In order to accurately describe the affected environment, a baseline was established for use during data collection and impact analysis activities. The baseline is important in that it describes a set of existing environmental conditions at a specific point in time. The baseline utilized for this EIS is 1998-2000.

##### **Data Collection**

The data collection process included the compilation of existing data, and thus the identification of data gaps. Data were collected from Brooks Air Force Base (AFB), Texas, and from various local, state, and federal agencies.

Raw data, analyses, and summaries have been carefully organized throughout the Environmental Impact Analysis Process (EIAP). Council on Environmental Quality (CEQ) regulations strongly advise that only carefully generated summaries of environmental studies be included within the EIS. Supporting data has been retained in project files, because they may be requested by regulatory or other government agencies to support findings and recommendations of the EIS.

## **Regulatory Requirements**

Regulatory requirements that address the management of certain resources, in addition to the requirements of the National Environmental Policy Act (NEPA), may be found in many pieces of legislation at the federal, state, and county level. The jurisdiction of these laws over a military base varies according to the resource involved. For example, cultural resources on a federal installation are subject to federal mandates only. Issues related to potential health hazards, on the other hand, are regulated at the state and local level as well (e.g., air and water pollution). The analysis of environmental effects was conducted in the regulatory context appropriate to the location of Brooks AFB and the current and projected activities to be performed on the property.

**Impact assessment** is mandated by the CEQ. Significance of a potential impact is judged by its **context** and **intensity** (40 Code of Federal Regulations [CFR] 1508.27[a]). Analysis of an impact within multiple contexts such as locality, affected region, affected interests, and society as a whole, is often required for an adequate assessment. The intensity of an impact is evaluated by considering the degree to which the action affects public health and safety, has a potentially controversial effect on environmental quality, establishes a precedent or represents a decision for future actions, and is related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27[b]). Analysis methods for impact assessment for each resource area are discussed below.

The potential effects of the implementation of the BCBP and their ramifications are clearly presented in sufficient detail to allow the decision maker to make a determination of significance. Cumulative impacts were considered based upon projected impacts of implementing the BCBP in concert with other planned projects in the vicinity.

## **2.0 SPECIFIC METHODS**

### **2.1 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

In October 1999, Congress passed legislation (Fiscal Year 2000 Defense Appropriations Act, Section 8168, Public Law [P.L.] 106-79), known as the Base Efficiency Project, allowing the Air Force to conduct a demonstration project at Brooks AFB (see Appendix D of this EIS). For the purposes of this EIS, and for consistency with terminology recognized by the public, this project will hereinafter be referred to as the BCBP. The project is intended to improve mission effectiveness and reduce the cost of providing quality installation support at Brooks AFB. The purpose of the legislation is to evaluate and demonstrate methods for more efficient operation of military installations through improved capital asset management and greater reliance on the public or private sector for less costly base support services, where available. The authorities provided in this legislation took effect on June 15, 2000, and expire on September 30, 2004. The purpose of the BCBP analyzed in this EIS is to implement the legislation. The Request for Environmental Analysis (Air Force Form 813) prepared by Brooks AFB was provided to Earth Tech to be used to begin development of the DOPAA.

Development of the DOPAA for this EIS was coordinated with personnel from Brooks AFB and representatives from the CoSA and other local San Antonio agencies and organizations. A DOPAA Workshop was held on February 29-March 1, 2000, at Brooks AFB. The purpose of the workshop was to obtain consensus on the types of land uses expected to occur on Brooks AFB with implementation of the BCBP. A list of workshop attendees is provided in Table G-1.

The methodologies used in developing data for the Proposed Action were used for the alternatives to ensure that all scenarios would be treated equivalently when analyzed for potential future impacts. The types of land use and land use acreage for the Proposed Action were developed based upon input received at the DOPAA Workshop. Data were developed for building space (square feet), disturbance (acres), phasing (acres developed 5, 10, and 20 years after implementation of the action), utility demands, employment and population, and vehicle trips for the Proposed Action and alternatives using standard land use planning factors.

Ground disturbance was determined by calculating the existing built-up area in representative existing sites on Brooks AFB, and dividing this area by the total gross square footage of existing facility space to obtain a ratio of disturbance to gross square feet. This ratio was applied to each facility's gross square footage within each of the land use scenarios.

Population data were based on the number of residential units planned. These data are based on the average number of persons per dwelling unit using information from the U.S. Bureau of the Census and existing housing at Brooks AFB.

Employment data were based on the number of gross square feet of building space per employee. These factors, based upon typical industrial standards, varied depending on the land use; for example, commercial space would typically generate more employees per square foot than industrial space.

The number of vehicle trips associated with each of the land use scenarios was estimated using the ITE Trip Generation database. Each proposed land use was compared to the land use categories in the ITE database, and an appropriate land use category was selected. Trip generation was then estimated based on the intensity of the land use using a weighted average trip generation rate based on traffic studies included in the ITE database. The number of trips was determined from the weighted trip generation rate per unit of independent variable (i.e., per 1,000 gross square feet, acres, dwelling unit). Trips were then aggregated for the project site to determine the total estimated average daily traffic volume. The base boundaries were used to define the project boundary. Average daily traffic, peak-hour generation, and trip generation of the adjacent streets during the peak hour were obtained for use in the environmental analysis.

Utility usage was projected based on land use type, acreage, square footage of building space, and/or projected population and employment. Utility projections were derived using standard planning rates, which were then adjusted to reflect historical consumption data from Brooks AFB.

Only about one-third of the proposed new development is projected to occur during the first 10 years of the project, while the remaining two-thirds is expected to occur in the second half of the 20-year planning period. These growth absorption forecasts rely on several assumptions about the economic marketplace for development in the south San Antonio area.

**Table G-1. DOPAA Workshop Attendees**

Name	Organization
Capt. Chuck Aukland	HQ AFCEE/ECA, Brooks AFB
Dale Clark	HQ AFCEE/ECA, Brooks AFB
Maj. Melissa Hagen	HQ AFCEE/JA, Brooks AFB
Larry Farlow	311 HSW/PA, Brooks AFB
Robert Gill	311 HSW/CDB, Brooks AFB
Herbert Klein	311 HSW/CDB, Brooks AFB
Roby Gregg	311 HSW/EM, Brooks AFB
Art Hatfield	311 HSW/EM, Brooks AFB
Hamid Kamalpour	311 HSW/EM, Brooks AFB
Bob Sanchez	Brooks Advisory Board
Kathe Doran	City Public Service
Milton B. Russell	City Public Service
Mike Tyler	City Public Service
Mike Vorndam	City Public Service
Tim Gump	City of San Antonio/Asset Management
Eugene J. Smith	City Attorney
Mike Quinn	City of San Antonio/Public Works
Rocky Aranda	City of San Antonio/Public Works
Ed Davis	City of San Antonio/EDD
John Steinbauer	City of San Antonio/EDD
David Newman	City of San Antonio/ Environmental
Robert Siller	City of San Antonio/ Finance
Kara Norman	City of San Antonio/ Planning Department
Emile Moncivais	City of San Antonio/ Planning Dept., Director
Carl Wedge	City of San Antonio/ Fire Department
Craig Blume	Consultant
Jeff Labenz-Hough	HDR/Simpson, Chairman, Southside San Antonio Chamber of Commerce
Dan Steed	National Park Service
Steve Garza	Providence Commercial Real Estate
Art Gonzalez	Providence Commercial Real Estate
Dan Gostylo	Providence Commercial Real Estate
Doug Williams	San Antonio Chamber of Commerce
Jeanne Geiger	San Antonio – Bexar County Metropolitan Planning Organization
Marie Gelles	San Antonio Water System
David Lugo	San Antonio Water System
Pablo Martinez	San Antonio Water System
Chris Powers	San Antonio Water System
Darren Thompson	San Antonio Water System
Tim O’Krongley	Stinson Airport
Christina Ybanez	VIA Metropolitan Transit
David Nicolson	Weitzman Group
Maria Langmaack	Earth Tech Colton, California
Mark Personius	Earth Tech Bellevue, Washington

- Analysis of absorption rates for commercial office and industrial space in the greater San Antonio area was conducted by the Weitzman Group for the CoSA. This analysis indicated an overall rental office space market in San Antonio of approximately 20 million square feet and an annual absorption rate (i.e., new construction) of about 1 million square feet annually. This approximates to a 5-percent annual absorption rate of new office space. Industrial development space in the city is approximately 67 million square feet. The market absorbs approximately 1-2 million square feet of additional industrial space annually. This approximates to an annual absorption rate of slightly more than 2 percent.
- The competitive marketplace for office and light industrial space is also an important factor. Brooks AFB must compete for the limited market of new office/industrial space in San Antonio every year with other business and industrial parks and properties in the area, including new sites such as the former Kelly AFB. Generally, the more established, aggressively marketed sites with the fewest constraints, best available location, and infrastructure support facilities will be the most advantageous for new businesses. The “newness” of the BCBP concept, time necessary to resolve the conveyance documents and operational issues, and the focused nature of the medical/biotechnology research market are all factors that may act to constrain the immediate growth of development on the base.
- Infrastructure can also be a limiting factor to growth. While generally well served by public facilities, services, and utilities, Brooks AFB faces several traffic circulation constraints that must be resolved in order to stimulate development. These include on-base road improvements needed to improve circulation within the base and connectivity within the surrounding arterial roadway network. In addition, off-base improvements are needed to accommodate additional traffic flow, especially at the congested Interstate Highway (IH)-37/S.E. Military Drive/Goliad Road interchange.

In general, the size of the San Antonio business park market, required infrastructure improvements, local competitive marketplace for commercial/industrial land, narrow focus of the medical/biotechnical market, and uncertainties about the process and procedures for future private sector development on the base are all factors that, collectively, are likely to dampen the initial growth absorption forecasts for the base. It is expected that once many of these issues have been resolved, absorption rates would increase during the latter half of the planning period.

Tables G-2 through G-4 provide details on the quantitative figures generated for each of the three land use scenarios, based upon the planning assumptions described above.

## **2.2 LOCAL COMMUNITY**

### **2.2.1 Community Setting**

The community setting section provides the context within which impacts on the biophysical environment are assessed. Community setting effects were based on projected direct employment and resulting population changes related to the implementation of the BCBP. These projections were used to quantify and evaluate changes in demands on community services and transportation and utility systems.

#### **Region of Influence**

The ROI for community setting consists of the employment, income, and population of the San Antonio Metropolitan Statistical Area (MSA).



**Table G-2. Land Use Scenario A Backup Data (2020)**

Land Use Category	Total Acres	Gross Square Footage	Ground Disturbance (acres)	Direct Employment	Population	24-Hour 2-Way Volume ADT <sup>(a)</sup>	AM Peak-Hour Volume	PM Peak-Hour Volume	Potable Water Consumption (gallons/day) <sup>(b)</sup>	Wastewater Generation (gallons/day)	Solid Waste Generation tons/day	Electricity Consumption (kWH/day)	Natural Gas Consumption (cf/day)
Public/Open Space	245	70,000	20	25	0	2,737	326	429	1,000	800	0.05	5,397	15,050
Mixed Use	212	2,836,000	183	7,917	450	32,120	3,475	3,233	586,527	498,790	15.83	253,725	707,534
Traditional Neighborhood Development	147	552,000	69	0	1,908	4,929	386	520	48,185	61,045	3.82	58,288	162,540
Multi-Family Residential	63	1,290,000	63	0	2,250	4,307	329	385	77,951	72,000	4.50	99,459	277,350
Light Industrial	96	736,000	96	1,648	0	4,973	721	697	113,495	103,837	3.30	56,753	158,261
Research and Development Park	506	1,483,600	296	4,938	0	7,899	1,533	1,225	298,294	311,117	9.87	195,788	545,972
Retail/Commercial	41	489,500	41	400	0	23,315	820	2,219	24,158	25,200	0.80	45,566	127,065
<b>Total</b>	<b>1,310</b>	<b>7,457,100</b>	<b>768</b>	<b>14,928</b>	<b>4,608</b>	<b>80,280</b>	<b>7,590</b>	<b>8,708</b>	<b>1,149,610</b>	<b>1,072,789</b>	<b>38.17</b>	<b>714,976</b>	<b>1,993,772</b>

Notes: (a) ADT total has been rounded to the nearest increment of 50 shown in Chapter 2.0.

(b) Includes potable water reductions expected from implementation of San Antonio Water System recycled water distribution system on Brooks AFB.

ADT = average daily traffic

cf = cubic foot

kWH = kilowatt hour

**Table G-3. Land Use Scenario B Backup Data (2020)**

Land Use Category	Total Acres	Gross Square Footage	Ground Disturbance (acres)	Direct Employment	Population	24-Hour	AM Peak-Hour Volume	PM Peak-Hour Volume	Potable Water Consumption (gallons/day) <sup>(b)</sup>	Wastewater Generation (gallons/day)	Solid Waste Generation tons/day	Electricity Consumption (kWH/day)	Natural Gas Consumption (cf/day)
						2-Way Volume ADT <sup>(a)</sup>							
Public/Open Space	362	49,600	20	68	0	8,252	796	1,311	2,720	2,176	0.14	11,565	32,250
Mixed Use	163	1,503,100	126	4,703	210	24,696	2,672	2,486	340,100	296,264	9.41	150,424	419,471
Traditional Neighborhood Development	78	0	0	0	700	1,627	128	172	10,722	22,400	1.40	15,728	43,860
Multi-Family Residential	28	553,000	28	0	963	1,864	142	166	32,297	30,800	1.93	42,636	118,895
Light Industrial	214	1,640,900	214	3,674	0	11,085	1,607	61,554	246,524	231,469	7.35	126,512	352,790
Research and Development Park	465	1,331,900	259	4,658	0	7,259	1,409	1,125	269,648	293,465	9.32	184,228	513,736
Retail/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1,310</b>	<b>5,078,500</b>	<b>647</b>	<b>13,103</b>	<b>1,873</b>	<b>54,783</b>	<b>6,754</b>	<b>6,814</b>	<b>902,011</b>	<b>876,574</b>	<b>29.55</b>	<b>531,093</b>	<b>1,481,002</b>

Notes: (a) ADT total has been rounded to the nearest increment of 50 shown in Chapter 2.0.

(b) Includes potable water reductions expected from implementation of San Antonio Water System recycled water distribution system on Brooks AFB.

ADT = average daily traffic

cf = cubic foot

kWH = kilowatt hour

**Table G-4. Land Use Scenario C Backup Data (2020)**

Land Use Category	Total Acres	Gross Square Footage	Ground	Direct Employment	Population	24-Hour	AM	PM	Potable Water	Wastewater	Solid Waste	Electricity	Natural Gas
			Disturbance (acres)			2-Way Volume ADT <sup>(a)</sup>	Peak-Hour Volume	Peak-Hour Volume	Consumption (gallons/day) <sup>(b)</sup>	Generation (gallons/day)	Generation tons/day	Consumption (kWH/day)	Consumption (cf/day)
Public/Open Space	256	70,000	20	25	0	2,737	326	429	1,000	1,575	0.05	5,397	15,050
Mixed Use	241	3,624,000	213	9,820	900	36,514	3,950	3,675	737,574	618,653	19.64	314,862	878,020
Traditional Neighborhood Development	69	552,000	69	0	1,208	3,302	259	348	34,552	38,640	2.42	42,559	118,680
Multi-Family Residential	65	1,360,000	65	0	2,375	4,516	346	404	82,049	76,000	4.75	104,856	292,400
Light Industrial	214	1,640,900	214	3,674	0	11,085	1,607	1,554	251,291	231,469	7.35	126,512	352,790
Research and Development Park	465	1,343,000	259	4,658	0	7,259	1,409	1,125	280,007	293,465	9.32	184,228	513,736
Retail/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1,310</b>	<b>8,589,900</b>	<b>840</b>	<b>18,177</b>	<b>4,483</b>	<b>65,413</b>	<b>7,897</b>	<b>7,535</b>	<b>1,386,474</b>	<b>1,259,802</b>	<b>43.53</b>	<b>778,414</b>	<b>2,170,676</b>

Notes: (a) ADT total has been rounded to the nearest increment of 50 shown in Chapter 2.0.

(b) Includes potable water reductions expected from implementation of San Antonio Water System recycled water distribution system on Brooks AFB.

ADT = average daily traffic

cf = cubic foot

kWH = kilowatt hour

## **Data Collection**

Data used for the analysis included information regarding current and projected base employment, employee status, and employee place of residence. Population and employment data for the San Antonio area were obtained from various sources including the Greater San Antonio Chamber of Commerce, the CoSA Planning Department, and local agency employment and population estimates and forecasts for each community within the ROI. Information specific to Brooks AFB was obtained from on-base sources. Additional details are contained in Appendix H of this EIS.

## **Affected Environment**

The affected environment includes the current employment, income, and population associated with Brooks AFB, as well as off-base employment and population for the San Antonio MSA.

## **Impact Analysis**

Direct regional economic effects (employment and population) for the Proposed Action and alternatives were derived based upon information detailed in the descriptions of each alternative. The analysis provided information on changes in local/regional employment and population compared to baseline conditions. Additional details are contained in Appendix H of this EIS.

### **2.2.2 Land Use and Aesthetics**

Land use addresses both human and natural spatial patterns. Human land uses include residential, commercial, industrial, institutional, aviation-related, agricultural, recreational, and other developed use. Natural land use classifications include forest, rangeland, and other open or undeveloped areas. Potential land use and aesthetics impacts were projected based on compatibility of land uses associated with the Proposed Action and alternatives with adjacent land uses and zoning; consistency with land use plans, regulations, regional plans and policies; and safety restrictions on land uses.

## **Region of Influence**

The ROI for the majority of direct land use impacts for this study consisted of Brooks AFB and adjacent potentially affected properties. Visual and recreational resources subject to potential impact within the land use ROI were identified for analysis purposes.

## **Data Collection**

Sources used for the land use analysis included aerial photographs, U.S. Air Force Tab maps, and applicable regional and local policies and regulations. Data were collected from Brooks AFB and the CoSA Planning Department. Windshield surveys were conducted to characterize adjacent off-base land uses.

## **Affected Environment**

The affected environment was described in broad terms that could include such issues as wildlife refuges, prime farmlands, community plans, and on-site and adjoining land uses. The environmental setting was described with the aid of aerial photographs, zoning maps, and windshield surveys of the areas surrounding Brooks AFB. For aesthetics, the affected environment was described based upon the visual

sensitivity of areas within and visible from the base. These areas were categorized as high, medium, and low sensitivity based on existing building heights, architectural style, and land use density.

### **Impact Analysis**

The Proposed Action and alternatives were evaluated in terms of federal, state, and local laws and regulations that affect Brooks AFB. A critical part of the analysis encompassed an examination of the long-range plans contained in the Proposed Action and alternatives in terms of existing land use. Environmental consequences were defined by comparing the existing land uses, zoning and long-range plans, and projected land uses to anticipate potential land use incompatibilities and encroachment on proposed activities, as well as those on the local community.

The major parameters that determined the sensitivity of land use to changes are as follows:

- **Regulations controlling development of the base.** Federal or state environmental or land management programs or regulations could prohibit development in certain areas where impacts upon a resource cannot be mitigated, for example, in wetlands. Other federal or state regulations would not prohibit development, but development would necessitate extensive and costly mitigation effort (e.g., for protection of floodplains).
- **Public sensitivity.** Local concerns, such as perceived or adopted conflicts between the development authority and locally adopted land use plans, zoning, and other development regulations, could generate public opposition to implementation of the BCBP.
- **Existing and planned land uses in the vicinity of the site.** Although regulations controlling land use may or may not be in conflict with a particular site use, existing land uses could nevertheless be incompatible with proposed facilities.

The Proposed Action and alternatives were evaluated to identify land uses to be developed, visual modifications that would occur, and new areas of visual sensitivity, and to determine whether modification of unique or otherwise irreplaceable visual resources would occur and detract from the visual qualities or setting.

#### **2.2.3 Transportation**

Potential transportation impacts from the Proposed Action and alternatives focused on key regional and local road networks that serve as direct linkages to the base. Substantial changes in utilization of the existing roadway network were assessed to determine the potential transportation impacts to levels of service (LOS) resulting from implementation of the Proposed Action and alternatives. The LOS for each key roadway was determined by distributing traffic associated with the Proposed Action and alternatives on the existing roadway system, and evaluating the resulting changes in LOS. The expected change in LOS was compared to baseline conditions to determine the potential impacts.

### **Region of Influence**

The ROI included key roads within the vicinity of Brooks AFB that serve the installation and could be affected by the Proposed Action and alternatives.

## **Data Collection**

Transportation data for areas surrounding Brooks AFB were collected from the CoSA Planning Department. Data regarding on-base traffic counts were collected from 311 HSW/CE at Brooks AFB. Traffic counts conducted in December 1998 were utilized to obtain peak-hour volumes at selected intersections in the vicinity of Brooks AFB.

## **Affected Environment**

The key road segments of each network system were identified using existing trip distribution information and traffic volumes. Existing network descriptions included daily average and peak usage, LOS rating, and future planned upgrades or improvements to the existing transportation networks.

## **Impact Analysis**

The number of vehicle trips estimated as a result of the Proposed Action and alternatives was estimated for 2020 on the basis of direct on-site jobs and other attributes of on-site land uses (such as the number of dwelling units, and commercial and industrial activities). Trip Generation Data from the ITE database were used to determine average daily vehicle trips. Peak-hour vehicle trips were then allocated to the local road network using prior patterns and projected destinations and sources of trips. Changes in peak-hour traffic volumes arising from implementation of the BCBP were estimated, and resulting peak-hour volume changes on key regional, and local roadway segments were then determined.

The transportation network in the ROI was examined to identify potential impacts to LOS from implementation of the Proposed Action and alternatives. The planning application from the Highway Capacity Manual provided estimates of LOS resulting from changes in traffic. The planning procedures used in this analysis are based on forecasts of peak-hour volumes and on assumed traffic, roadway, and control conditions. The results provided an estimate of the changes in LOS rating expected as a result of traffic volume changes on key regional and local roadway segments.

### **2.2.4 Utilities**

Baseline or existing utility consumption and capacities were determined by analyzing consumption and system capacity data from community- or government-based utility systems within the ROI, including water supply and distribution systems, wastewater treatment facilities, and energy supply and distribution systems. Utility usage was determined based on proposed land uses and projected area population increases.

## **Region of Influence**

The ROI for utilities comprised the service area of the local utility purveyors of potable water, wastewater treatment, and energy distribution systems that serve Brooks AFB and the surrounding area.

## **Data Collection**

Data were collected from various published and unpublished references, engineering reports, public and private utility purveyors, related county and city agencies, and knowledgeable individuals. Historic consumption data, average and peak demand characteristics, storage and distribution capacities, and related information (including projections of future utility demand for each utility provider's particular service area) for Brooks AFB were obtained from 311 HSW/CE.

## **Affected Environment**

Existing utility system use and projected use throughout the analysis period were identified using utility purveyor information. Information obtained included average and peak usage, storage and distribution capacities, and planned future utility improvements or upgrades for each utility system.

## **Impact Analysis**

Potential impacts were evaluated based on the most current, long-term projections of demand and population obtained from the various utility purveyors within the region (through 2019) for each of their respective service areas.

The potential effects of implementing the action were evaluated by estimating and comparing the additional direct demand associated with each alternative to the baseline and to existing and projected operating capabilities of each utility system. Estimates of direct utility demands on site were used to identify the effects of the Proposed Action and alternatives on utility systems. All changes to the utility purveyors' long-term forecasts were based on estimated project-related population changes in the region and on current rates of per capita demand derived from the purveyors' data. It was assumed that the regional per capita demand rates are representative of the BCBP activities, based on assumed similarities between proposed land uses and existing or projected uses in the region. Projections in the utilities analysis included direct demand associated with activities planned on base property, as well as resulting changes in domestic demand associated with population changes in the region.

## **2.3 HAZARDOUS MATERIALS MANAGEMENT**

The analysis focused upon storage, use, and disposal of substances deemed hazardous due to their physical characteristics, and their potential to affect human health and the environment. The ongoing hazardous materials management activities were summarized and assessed, primarily through review of existing documents, records, and permits.

## **Region of Influence**

The ROI included the current base property and all geographical areas that may be affected by hazardous materials.

## **Data Collection**

Data were obtained from published and unpublished environmental documents and Brooks AFB Environmental Management Directorate personnel. Primary sources of data included management plans for various toxic or hazardous substances, storage tank data, hazardous materials inventories, and the Basewide Environmental Baseline Survey (EBS) prepared for Brooks AFB in June 1998. Pertinent federal, state, and local regulations and standards were reviewed for applicability to the Proposed Action and alternatives.

## **Affected Environment**

The affected environment was described using existing information on current hazardous materials management practices and inventories pertaining to hazardous materials management, storage tanks, pesticides, radioactive materials, and ordnance.

## **Impact Analysis**

The impact analysis considered (1) the types of hazardous materials currently associated with specific facilities and/or areas associated with the Proposed Action and alternatives, and (2) the regulatory requirements or restrictions associated with the outgrant or transfer of Brooks AFB property.

### **2.4 SOLID AND HAZARDOUS WASTE MANAGEMENT**

This analysis focused on solid waste collection and disposal systems, and disposal of waste deemed hazardous due to their physical characteristics and their potential to affect human health and the environment. The ongoing solid and hazardous waste management activities and plans were summarized and assessed, primarily through review of existing documents, records, and permits.

#### **Region of Influence**

The ROI for solid waste comprised the service area of the local purveyor of solid waste disposal services including disposal locations. The ROI for hazardous waste included the current base property and all geographical areas that could be affected by hazardous wastes. Installation Restoration Program (IRP) sites are within the base boundary, with the exception of the groundwater plume that has migrated off base to the south.

#### **Data Collection**

Data were obtained from Brooks AFB environmental documentation and Environmental Management Directorate personnel. Primary sources of data included IRP documents, hazardous and solid waste management plans, storage tank data, and the Basewide EBS prepared for Brooks AFB in June 1998. Updated information on IRP sites was obtained in July 2000. Pertinent federal, state, and local regulations and standards were reviewed for applicability to the Proposed Action and alternatives. Information on solid waste disposal was also obtained from BFI (the provider of solid waste disposal services for Brooks AFB), Covell Gardens Landfill, and the CoSA Public Works Department.

#### **Affected Environment**

The affected environment was described using existing information on current hazardous waste management practices and inventories pertaining to: hazardous waste management, IRP sites, asbestos-containing materials, medical/biohazardous waste, and lead-based paint.

## **Impact Analysis**

The impact analysis considered (1) the amount and type of hazardous and/or solid wastes currently associated with specific facilities and/or areas associated with the Proposed Action and alternatives; (2) the regulatory requirements or restrictions associated with the lease or transfer of government property on Brooks AFB; and (3) potential restrictions due to the presence of IRP sites and/or ongoing remediation activities.



## **2.5 NATURAL ENVIRONMENT**

### **2.5.1 Geology and Soils**

This resource area encompassed geologic resources and soils. These are considered to be earth resources that may be adversely affected by the Proposed Action and alternatives. The analysis examined potential impacts, including, but not limited to, those resulting from or associated with soil erosion and siltation, soil/geologic resource consumption, and geologic hazards.

#### **Region of Influence**

The ROI for the geologic analysis focused on Brooks AFB and surrounding areas with seismic activity, aggregate resources, and flooding potential. The ROI for the soils analysis was limited to Brooks AFB property.

#### **Data Collection**

The majority of data necessary for the geology and soils analysis were derived from existing maps, surveys, records, reports, logs, and aerial photographs. Sources of information included existing environmental documentation at Brooks AFB, the U.S. Department of Agriculture, Natural Resources Conservation Service, and the U.S. Geological Survey.

#### **Affected Environment**

The affected environment described specific geologic resources and soils subject to potential impacts from the Proposed Action and alternatives.

#### **Impact Analysis**

Evaluation of soils impacts addressed erosion potential and other soils problems (e.g., low soil strength, expansive soils) and disturbance of individual soil types. The soils analysis was based on a review of Natural Resources Conservation Service documents and surveys for soil properties. The soils in the ROI were then evaluated for erosion potential, permeability, and expansive soil characteristics, as they related to construction problems and erosion potential during construction.

### **2.5.2 Water Resources**

This resource area encompasses groundwater and surface water that may be adversely affected by the Proposed Action and alternatives.

#### **Region of Influence**

The ROI for water resources extends beyond Brooks AFB boundaries to include the regional groundwater supplies and quality, the surface drainage directly affected by runoff from the base, the existing floodplains on and in the vicinity of the base, and those areas significantly affected by waterborne and airborne contaminants or changes in surface water or groundwater levels or flow patterns.

## **Data Collection**

Information was collected from existing environmental documentation from Brooks AFB and other local, state, and federal agencies. The majority of data was derived from existing maps, surveys, records, reports, and logs.

## **Affected Environment**

The affected environment was addressed by describing the specific hydrologic basin subject to potential impact from the Proposed Action and alternatives.

## **Impact Analysis**

Analysis of impacts of the Proposed Action and alternatives on water resources considered groundwater quality and quantity, surface water quality (effects from erosion or sedimentation and contamination), and surface water drainage diversion. Existing surface water conditions were evaluated for flood potential, non-point source discharge or transportation of contaminants, and surface water quality. Groundwater resources were evaluated as they pertained to adequate water supplies for the Proposed Action and alternatives. Groundwater quality and the potential as a potable water source for the Proposed Action and each alternative were documented. The existing storm water drainage system was evaluated based on available literature, and the impacts to this system from the Proposed Action and each alternative were determined.

### **2.5.3 Air Quality**

The air quality resource is defined as the condition of the atmosphere expressed in terms of the concentrations of air pollutants occurring in an area as the result of emissions from natural and/or man-made sources. The Proposed Action and alternatives have the potential to affect air quality depending on net changes in the release of both gaseous and particulate matter emissions. The impact of these emissions changes was determined by comparing the resulting atmospheric concentrations to state and federal ambient air quality standards for attainment areas.

## **Region of Influence**

The ROI was determined based on the projected distribution of emissions from sources associated with construction and operations proposed under the Proposed Action and alternatives. The ROI for air quality resources is Bexar County, which is located in the Metropolitan San Antonio Air Quality Control Region.

## **Data Collection**

This analysis utilized climatological data, air quality monitoring data, baseline emissions inventory information, and transportation data. The majority of data was derived from descriptions, permits, and operations records, and emission statements for existing equipment. Sources of information included base resources and federal and state agencies, including the Texas Natural Resource Conservation Commission (TNRCC) and the Alamo Area Council of Governments (AACOG). Federal and state agency databases, such as the U.S. Environmental Protection Agency (EPA) Aerometric Information Retrieval System (AIRS), were also utilized.

## **Affected Environment**

The affected environment for air quality described the current conditions, regulatory framework, ambient concentrations, and status of regional and local attainment with Ambient Air Quality Standards. Past emissions inventories and violations were also obtained.

## **Impact Analysis**

Emissions predicted to result from the proposed alternatives were compared to existing baseline emissions to determine the potential for adverse air quality impacts. Impacts were also assessed by modeling, where appropriate, and compared to air quality standards and attainment levels for complying with these standards. Background concentrations were added to the project impacts for comparison with the standards and attainment levels.

Air quality impacts could occur during construction and operations associated with the Proposed Action and alternatives. Construction-related impacts could result from fugitive dust (particulate matter) and construction equipment emissions. Operational impacts could occur from (1) mobile sources such as commercial transport vehicles and personal vehicles; (2) point sources such as heating/power plants, generators, incinerators, and storage tanks; and (3) area emissions sources associated with increased energy consumption and hazardous air pollutants (HAPs).

The methods selected to analyze impacts depended upon the type of air emissions source being examined. The primary emissions source categories associated with the Proposed Action and alternatives included construction operations and other point, area, and mobile source emissions related to the BCBP.

Construction activities would generate combustive emissions from heavy equipment usage, associated construction workers' travel, fugitive dust emissions from ground-disturbing activities, and area emissions associated with architectural coating. For emissions of particulate matter equal to or less than 10 microns in diameter (PM<sub>10</sub>) during grading and ground disturbance, the emission factors listed in the Air Quality Thresholds of Significance were applied. The screening tables for estimating total construction emissions and associated workers' travel emissions from the California Environmental Quality Act (CEQA) Handbook, Southern California Air Quality Management District (SCAQMD), were applied for assessing air quality impacts. All emissions were calculated using applied EPA AP 42 emissions factors for air emissions analysis. These emissions factors are generic and applicable to all areas of the country. Federal and state of Texas standards were used to determine significance.

Motor vehicle emissions resulting from operations were estimated using emissions factors from the screening tables listed in the CEQA Handbook. Estimates of mobile emissions for the Proposed Action and alternatives were based upon projected facility square footage within each land use element. An 80 percent year-round occupancy rate was assumed for the transient student lodging facility. The CEQA Handbook uses the term "reactive organic compound (ROC)" instead of "volatile organic compound (VOC)." However, these terms are considered equivalent, and the term "VOC" has been used in this EIS. The term total organic compounds (TOC) may also be used interchangeably with VOC.

Operational activities could generate various amounts and types of air emissions from the various land uses proposed under the BCBP. A screening method was used to estimate operational emissions from energy consumption sources (e.g., electricity and natural gas) for the proposed land uses. The emissions factors were derived from EPA AP 42 emissions factors. Benzene emissions were calculated for a possible service station as part of the mixed use land use area. Benzene HAPs calculations were derived

from the CEQA Handbook emission factors for benzene and TOCs for vehicle fueling and storing composite activities.

#### **2.5.4 Noise**

The noise analysis addressed potential noise impacts from surface traffic and any other identified noise sources on the base and in the surrounding communities from the Proposed Action and alternatives. Day-night average sound level (DNL) was used to determine noise impacts. The DNL is the average A-weighted acoustical energy during a 24-hour period, with a 10 decibel (dB) adjustment added to the nighttime levels (between 10:00 p.m. and 7:00 a.m.) to account for the increased sensitivity to nighttime noise events.

#### **Region of Influence**

The ROI was defined as the area within DNL 65-dB contours based on land use compatibility guidelines developed from Federal Aviation Administration (FAA) regulations. Although the FAA guidelines specifically apply to aircraft noise, it should be noted that DNL is also used to describe the noise environment related to other community noise sources, including motor vehicles. The use of DNL is endorsed by the scientific community to assess land use compatibility as it pertains to noise. Hence, the land use guidelines presented by the FAA can also be used to assess the noise impact from community noise sources other than aircraft. The ROI for surface traffic noise impacts incorporated key road segments from the transportation analysis.

#### **Data Collection**

Data regarding noise levels generated for the Proposed Action and alternatives was obtained from the surface traffic analysis presented in Chapter 4.0 of this EIS. Information regarding land-use patterns, unique noise source locations and characteristics, noise-sensitive locales and or populations, and applicable noise ordinances, policies, and standards were utilized in this analysis.

#### **Affected Environment**

A description of the noise environment was generated for the baseline, which included those activities that currently generate noise at Brooks AFB and a description of noise-sensitive areas in the vicinity surrounding Brooks AFB.

#### **Impact Analysis**

Noise levels resulting from surface traffic were estimated using the Federal Highway Administration's Highway Traffic Noise Model. The model uses traffic volumes, vehicular mix, traffic speed, traffic distribution, and roadway length to estimate traffic noise levels. Potential noise impacts were identified by overlaying the noise contours with land use and population information to determine the number of residents who would be exposed to DNL above 65 dB. The noise analysis determined the extent and magnitude of noise levels for the Proposed Action and alternatives using the aforementioned model. Net change over baseline conditions was then calculated. Environmental consequences related to noise include effects on local human populations; thus, impacts are highly dependent upon land use. Noise estimates were compared to existing ambient levels, applicable local and federal regulations and standards, and accepted land use compatibility guidelines.

### **2.5.5 Biological Resources**

Biological resources addressed in the analysis included vegetation, wildlife, threatened and endangered species or their habitats, and sensitive habitats (wetlands). The latter two resource categories include those resources protected by federal, state, or local legislation.

#### **Region of Influence**

The ROI for vegetation, wildlife, threatened and endangered species, and sensitive habitats included Brooks AFB and other areas that could be directly or indirectly affected by implementation of the BCBP.

#### **Data Collection**

Primary sources of data collected for the analysis included environmental documentation from Brooks AFB, the 1996 Brooks AFB Integrated Natural Resources Management Plan, the Biological Assessment for the Effect of Water Draw on the Edwards Aquifer by Department of Defense Installations in the San Antonio Area, other published literature and reports, biological survey reports and studies, species lists, field surveys of the base, and contacts with the Texas Department of Parks and Wildlife and the U.S. Fish and Wildlife Service. Wetlands on base were identified in 1994 by the Environmental Management Directorate in cooperation with the U.S. Army Corps of Engineers.

#### **Affected Environment**

The affected environment section included a description of any biological resources with the potential to be affected by the Proposed Action and alternatives. These resources included vegetation, wildlife, threatened and endangered species, and sensitive habitats.

#### **Impact Analysis**

The impact analysis assessed the potential changes in biological population or habitat quality resulting from implementation of the BCBP. Analysis of impacts to vegetation included the effects of construction disturbance. Wildlife impacts that were addressed included habitat destruction and increased stress from noise or human presence. Sensitive habitats were defined as areas protected by regulations (such as wetlands and habitat for protected species) and plant communities that are of concern because they are unusual, limited in distribution, or important seasonal use areas for wildlife. Impacts to sensitive habitats that may occur from habitat loss or degradation, increase in human use of an area, and other sources were also considered.

Potential indirect impacts to biological resources considered in this analysis included erosion (habitat loss, water pollution) and groundwater drawdown effects on the region's habitats and associated species. Federal natural resources regulations, such as the Endangered Species and Clean Water acts, were considered in this analysis. A specific assumption made for analysis of impacts to wetlands within BCBP development areas was that wetlands disturbance would be avoided.

### **2.5.6 Cultural Resources**

Cultural resources generally include three main categories: prehistoric and historic archaeological resources, historic buildings and structures, and traditional resources. Prehistoric and historic archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Historic buildings and structures include above ground standing features

and ruins of historic significance. Traditional resources are topographical areas, features, habitats, plants, animals, minerals, or archaeological sites that contemporary Native Americans or other groups value presently, or did so in the past, and consider essential for the persistence of their traditional culture. Cultural resources of particular concern include properties listed in the National Register of Historic Places (National Register), properties potentially eligible for the National Register, and sacred Native American sites and areas.

### **Region of Influence**

The ROI for cultural resources is synonymous with the Area of Potential Effect (APE) under cultural resources legislation. The ROI encompasses all areas within the boundaries of Brooks AFB where ground disturbance might occur, where any buildings or structures may require modification or demolition, or any property that may be leased or transferred to a non-federal agency.

### **Data Collection**

Data used to compile information on these resources were obtained from existing environmental documents, other material on file at Brooks AFB, recent cultural resource reports pertaining to the base, and the Historic Preservation Plan for Brooks AFB.

### **Affected Environment**

All types of resources encompassed within the cultural resources category are described under the Affected Environment section. Interpretations and summarizing statements are provided to allow adequate impact analysis.

### **Impact Analysis**

Environmental legislation recognizes only impacts to significant or potentially significant cultural resources (i.e., known as historic properties). Therefore, the impact assessment methods considered the significance of the resource as well as the significance of the impact.

According to National Register criteria (Title 36 CFR 60.4), the quality of significance is present in districts, sites, buildings, structures, and objects that:

- (a) Are associated with events that have made a significant contribution to the broad patterns of history
- (b) Are associated with the lives of persons significant in the past
- (c) Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguishable entity whose components may lack individual distinction
- (d) Have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in or considered eligible for listing in the National Register, a cultural resource must meet at least one of the above criteria and must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. Integrity is defined as the authenticity of a property's historic identity, as evidenced by the survival of physical characteristics that existed during the property's historic

or prehistoric occupation or use. If a resource retains the physical characteristics it possessed in the past, it has the capacity to convey information about a culture or people, historical patterns, or architectural or engineering design and technology.

Ideally, compliance with requirements of cultural resources laws and regulations consists of five steps: (1) identification of cultural resources that could be affected by the proposed action or its alternatives, (2) determination of significance of potential historic properties within an ROI, (3) assessment of the impacts or effects of these actions, (4) council comment, and (5) development and implementation of measures to eliminate or reduce adverse effects.

The primary law governing cultural resources in terms of their treatment in an environmental analysis is the National Historic Preservation Act (NHPA), which addresses the protection of archaeological, historic, and Native American resources. In compliance with the NHPA, the Air Force will consult with the State Historic Preservation Officer (SHPO), as required under Section 106 of the NHPA.

Adverse effects are found when an undertaking may alter, directly, or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register. Examples of adverse effects include, but are not limited to (Title 36 CFR 800.5 (a)(2)):

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

In addition, for those historic properties transferred from federal ownership, Section 35-7037 (*Unidentified Archeological Sites*) of San Antonio Ordinance 80910 prescribes specific actions to be followed when a previously unidentified archaeological site is discovered during the course of construction or demolition. Nonconformance with Ordinance 80910 may result in the mandatory restoration of the building, object, structure, or site to its appearance or setting prior to the violation. This civil remedy is in addition to, and not in lieu of, any criminal prosecution and penalty.

Ordinance 80910 stipulates:

1. The City of San Antonio Historic Preservation Officer (HPO) must be contacted for assistance on consulting with a qualified archeologist.
2. The HPO shall consult with the qualified archaeologist to determine the significance of the archaeological finding.
3. If the HPO and archaeologist concur that no adverse effect will occur to the site, the project may proceed.
4. If an adverse effect is expected, the project shall be referred to the City of San Antonio Historic Design Review Commission (HDRC) with a recommendation for treatment at its next meeting (or a special meeting called for review), following these procedures:
  - The HRDC shall consider ways to avoid, reduce, or mitigate effects on the site, while taking into account the needs of the project and reasonable methods for carrying out the recommended plan.
  - The HRDC shall consider in-place preservation, monitoring, data recovery, and commitment to the project.
5. Activities must proceed following these recommendations, with all work halted until the effort is completed.

## **2.6 ENVIRONMENTAL JUSTICE**

An environmental justice analysis is an examination of adverse impacts that would occur from a proposed action and its alternatives to determine whether these adverse impacts would disproportionately affect minority and/or low-income populations. Minority populations are identified as Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Hispanic; or Other. Low-income populations include families below the poverty level (\$12,764 for a family of four in 1989, as reported in the 1990 Census of Population and Housing).

### **Region of Influence**

The ROI is defined as the community of comparison (COC). The COC is the smallest governmental or geopolitical unit that encompasses the impact footprint for each resource. Types of governmental units that may be identified as the COC include cities, towns, townships, counties (or portions thereof), parishes, tribal governments, or resource-specific agencies, such as an air quality control board. For this analysis, the COC was determined to be Bexar County,

### **Data Collection**

Much of the information used for the environmental justice analysis was derived from the environmental justice analysis conducted for the EIS prepared for the disposal of Kelly AFB, Texas. Where additional information was necessary to supplement the Kelly EIS data, it was obtained from the U.S. Bureau of the Census, Census of Population and Housing Data and Topographically Integrated Geographic Encoding and Referencing (TIGER) files.



## **Affected Environment**

The affected environment section provided census data for the COC and the percentage of minority and/or low-income persons in those areas.

**Impact Analysis.** The EIS analysis was used as the basis for identifying environmental justice impacts. Adverse impacts associated with the Proposed Action and alternatives that would not occur under the No-Action Alternative were considered. The environmental justice analysis was necessary only if the environmental impact analysis indicated that there were impacts; if there were no environmental impacts on human populations, no disproportionate environmental impacts on minority or low-income populations resulted. The area in which the projected adverse impacts would occur is referred to as the impact footprint and was identified for each resource examined.

## **APPENDIX H**

### **POPULATION, EMPLOYMENT, AND INCOME BACKUP DATA**

## **APPENDIX H**

### **POPULATION, EMPLOYMENT, AND INCOME BACKUP DATA**

#### **Methodological Approach**

The methodological approach for the employment, income, population, housing, community services and infrastructure sections of this document included three basic steps. First, the new facility construction (square feet) and direct on-site employment for each land use development scenario identified in Chapter 2.0, was used to obtain estimates of the construction employment and operations period employment for the 2001-2020 period. Second, these employment estimates, by land use category, were assigned Standard Industrial Classification (SIC) codes for use in an operational regional forecasting and simulation model. Utilizing the rate of development identified in Chapter 2.0, the cumulative growth of direct, on-site employment was developed for each land use development scenario. Third, the model output, which provides projections of employment, income, and population change over the forecast period, was used to derive projections for the three benchmark years of 2005, 2010, and 2020. Using widely accepted planning standards and/or service levels, each scenario-related population change was used to derive estimates of the demand for housing, community services, and infrastructure. All referenced figures and tables are provided at the end of this appendix.

#### **Construction and Operations Period Employment Estimates**

The new facility construction (square feet) estimates for each land use development scenario provided in Chapter 2.0 were allocated to individual square foot estimates for the type of land use categories identified in Chapter 2.0. Data on square foot construction costs (R.S. Means, Co., Inc., 1999) were used to derive an estimate of the total construction costs involved with each land use development scenario. Although labor costs vary by location, types of construction, labor market conditions, labor force participation rates, season, and a wide assortment of other factors, labor costs were assumed to be 50 percent of total construction costs (Stevens, 2000). Using an assumption of a fully-burdened labor rate of \$40 per hour and a standard 2,080 hour year, the labor costs associated with each land use development scenario were divided by \$83,200 ( $40 \times 2,080$ ) to derive an estimate of the number of construction workers associated with each land use category.

Data on the square foot per employee for different SIC code industries (Yee & Bradford, 1999) was then used to derive an estimate of the direct on-site employment once the construction of facilities identified in each land development scenario were finished. These independently derived numbers were then adjusted to reflect the "operations period" employment estimates, minus the existing on-base employment of 3,844 at Brooks AFB, provided in Chapter 2.0 for each scenario.

Tables H-1, H-2, and H-3 provide the construction and operations employment associated with each land use development scenario, along with their respective SIC code allocation.

A summary of economic projections is provided in Tables H-7 through H-12. Tables H-13 through H-19 provide detailed employment and population projections for each land use scenario assessed under the Proposed Action and Outgrant Alternative, as well as for the No-Action Alternative.

## **Assumed Cumulative Growth of Direct On-Site Employment**

Once the allocation of employment to SIC codes had been determined, assumptions were made regarding the cumulative growth of direct employment over the 2001 to 2020 period, so that the new employment level could be entered into the regional forecasting and simulation model as a policy variable for each scenario. Tables H-4, H-5, and H-6 provide the details of the assumed cumulative growth in employment, by SIC code, on the assumption that 10 percent of the land use development would occur between 2001-2005, 25 percent between 2005-2010, and 65 percent between 2010-2020. Note that while “operations” employment would be expected to steadily increase as facilities were built and began operation, construction employment would not be cumulative over time, but rather stay constant within the three separate time periods, or development phases. Construction workers are assumed to “move on” to other facilities, buildings, and structures, etc. once they have finished the construction of one facility, building or structure. The numbers provided in Tables H-4, H-5, and H-6 represent the raw data (policy variable changes) entered into the regional forecasting and simulation model, for each land use development scenario.

## **Regional Forecasting and Simulation Model**

Model Overview - The economic-demographic-forecasting and simulation model, developed by Regional Economic Modeling, Inc. (REMI) and used for the analysis in this document, is calibrated to many sub-national areas for forecasting and policy analysis. Simulations with the model are used to estimate the economic and demographic effects of policy initiatives in such areas as: economic development programs, transportation, infrastructure investments, environmental improvement, energy and natural resource conservation programs, and state and local tax changes.

The REMI model is customized to a particular region, in this case, the San Antonio metropolitan statistical area (MSA), Texas, consisting of Bexar, Comal, Guadalupe and Wilson counties. The model includes state and county-specific data for industry-specific wage rates, production costs, employment, profitability and sales prices, as well as consumer prices, housing prices, employment opportunity, population, state and local government spending, investment, income, personal consumption, and many other variables.

The REMI model has the following seven features:

- It is calibrated to local conditions using a relatively large amount of local data, which is likely to improve its performance, especially under conditions of structural economic change.
- It has an exceptionally strong theoretical foundation.
- It actually combines several different kinds of analytical tools (including economic-base, input-output, and econometric models), allowing it to take advantage of each specific method's strengths and compensate for its weaknesses.
- It allows users to manipulate an unusually large number of input variables and gives forecasts for an unusually large number of output variables.
- It allows the user to generate forecasts for any combination of future years, allowing the user special flexibility in analyzing the timing of economic impacts.
- It accounts for business cycles.

- It has been used by a large number of users under diverse conditions and has proven to perform acceptably.

Model Structure - The structure of the model incorporates inter-industry transactions and endogenous final demand feedbacks. In addition, the model includes: substitution among factors of production in response to changes in relative factor costs, migration in response to changes in expected income, wage responses to changes in labor market conditions, and changes in the share of local and export markets in response to changes in regional profitability and production costs.

It uses theoretical structural restrictions instead of individual econometric estimates based on single time-series observations for each region. The explicit structure of the model facilitates the use of policy variables that represent a wide range of policy options and the tracking of the policy effects on all the variables in the model.

The inclusion of price responsive product and factor demands and supplies give the REMI model much in common with computable general equilibrium (CGE) models. CGE models have been widely used in economic development, public finance and international trade, and have been more recently applied in regional settings. Static CGE models usually invoke market clearing in all product and factor markets. Dynamic CGE models typically assume perfect foresight inter-temporal clearing of markets, or temporary market clearing if expectations are imperfect. The REMI model differs, however, because product and factor markets do not clear continuously. The time paths of responses between variables are determined by combining a priori model structure with econometrically estimated parameters.

Although the model contains a large number of equations, the five blocks in Figure 1 describe the underlying structure of the REMI model. Each block contains several components that are shown in rectangular boxes. The lines and arrows represent the interaction of key components both within and between blocks. Most interactions flow both ways indicating a highly simultaneous structure. Block 1, labeled output linkages, forms the core of the model. An input-output structure represents the inter-industry and final demand linkages by industry. The interaction between block 1 and the rest of the model is extensive. Predicted outputs from block 1 drive labor demand in block 2. Labor demand interacts with labor supply from block 3 to determine wages. Combined with other factor costs, wages determine relative production costs and relative profitability in block 4 affecting the market shares in block 5. The market shares are the proportions of local demand in the region in block 1 and exogenous export demand that local production fulfills.

The endogenous final demands include consumption, investment, and state and local government demand. Real disposable income drives consumption demands. An accounting identity defines nominal disposable income as wage income from blocks 2 and 4, plus property income related to population and the cohort distribution of population calculated in block 3, plus transfer income related to population less employment and retirement population, minus taxes. Nominal disposable income deflated by the regional consumer price deflator from block 4 gives real disposable income. Optimal capital stock calculated in block 2 drives stock adjustment investment equations. Population in block 3 drives state and local government final demand. The endogenous final demands combined with exports drive the output block.

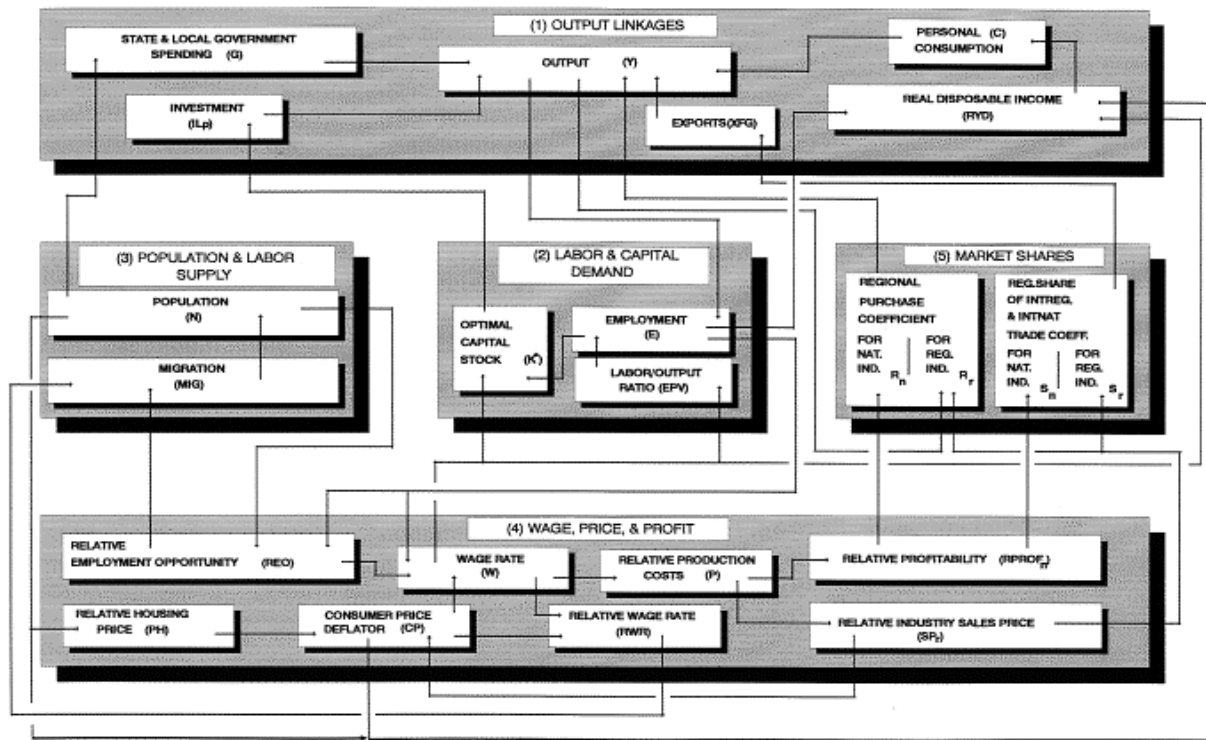
The use of the REMI model for analysis of policy effects is a two-step process. First, a regional baseline forecast (in this case, the San Antonio MSA) that uses a national forecast as one of the inputs is generated by the model. Second, the direct effects of a policy change (employment levels) are input into the REMI model to generate a forecast for the local economy with the policy change (alternative forecast). The difference between the baseline and alternative forecasts thus gives the total effects of a policy change (direct, on-site employment changes).

Direct effects of a policy change are input to the REMI model through a large set of policy variables. They include industry-specific variables, cohort-specific variables for 808 age-gender-race cohorts, and final demand-specific variables for 25 final demand sectors. The policy variables cover a wide range of possible types of inputs that make it possible to analyze any policy that may affect a sub-national area.

Forecasting With the REMI Model - Economic forecasting, particularly regional economic forecasting, is difficult for several reasons. The variables determined outside of the model (i.e., exogenous variables) must be forecast, the dynamic structure of the real economy must be captured in the model, and the effects of processes such as speculative episodes that are not included in the model must be foreseen. In addition to these difficulties, the forecaster must ascertain the current values of the variables in the economic model.

Given the difficulties of economic forecasting, it may be useful to think of a model as an instrument that can correctly capture many of the complex interactions in an economy, but may not include some of the aspects of the economy that might be foreseen by expert observers. In this instance, the model serves as an organizing instrument. It provides a structure within which various experts can bring their knowledge together to generate a coherent and consistent picture of the most likely future of the regional economy, as well as alternative possible futures.

Figure H-1 - Endogenous Linkages In The REMI Model



**THIS PAGE INTENTIONALLY LEFT BLANK**



Table H-1. Construction and Operations Employment SIC Code Allocation Calculations - Scenario A

Land Use Category	Sq. Ft.	Cost/Sq. Ft.*	Total Costs	Labor Costs**	Construction Employment***	SIC Code	Square Foot Per Employee****	Operations Employment	DOPAA Emp. Est.*****	Adjustment Factor*****	Adjusted Operat. Employment	SIC Code	Total New Employment
<b>Public Open Space</b>	70,000							<b>133</b>	<b>25</b>	<b>0.188</b>			
schools & other municipal facilities	70,000	95.25	6,667,500	3,333,750	40	15, 17	530	133			25	90	65
<b>Mixed Use/Transit Oriented Design</b>	2,836,000							<b>4,019</b>	<b>6,903</b>	<b>1.718</b>			
transit station (bus terminal)	12,000	91.00	1,092,000	546,000	7	15, 17	3,290	4			7	41	14
post office	13,000	81.20	1,055,600	527,800	6	15, 17	530	25			43	90	49
library	22,000	100.95	2,220,900	1,110,450	13	15, 17	530	42			72	90	85
hotel/conference center	135,000	98.62	13,313,700	6,656,850	80	15, 17	770	175			301	70	381
administrative offices	530,000	77.30	40,969,000	20,484,500	246	15, 17	740	716			1,230	81, 83, 86, 87	1,476
professional services	530,000	77.30	40,969,000	20,484,500	262	15, 17	770	688			1,182	73	1,444
apartments/townhouses/condominiums	530,000	98.00	51,940,000	25,970,000	312	15, 17							312
support services	530,000	77.30	40,969,000	20,484,500	246	15, 17	370	1,432			2,458	73	2,706
retail (restaurants, delis, coffee shops, dry cleaners, gift shops)	534,000	74.25	39,649,500	19,824,750	238	15, 17	570	937			1,610	58, 72, 59	1,848
<b>Traditional Neighborhood Development</b>	532,000												
residential - single family	138,000	67.05	9,262,900	4,631,450	96	15, 17							96
residential - duplexes	138,000	60.75	8,383,500	4,191,750	90	15, 17							90
residential - townhouses	138,000	61.69	8,513,220	4,256,610	51	15, 17							51
residential - apartments	138,000	98.00	13,524,000	6,762,000	81	15, 17							81
<b>Multi-Family Residential</b>	1,290,000												
garden apartments	430,000	98.00	42,140,000	21,070,000	253	15, 17							253
condominiums	430,000	98.00	42,140,000	21,070,000	253	15, 17							253
multi-family detached	430,000	61.69	26,526,700	13,263,350	159	15, 17							159
<b>Light Industrial</b>	736,000							<b>1,342</b>	<b>1,648</b>	<b>1.228</b>			
light manufacturing	147,000	65.90	9,687,300	4,843,650	98	15, 17	367	401			492	35, 36, 38	550
warehouse/distribution facilities	147,000	52.90	7,776,300	3,888,150	47	15, 17	3,290	45			55	42	102
printing plants	147,000	65.90	9,687,300	4,843,650	98	15, 17	450	327			402	27	460
material testing laboratories	147,000	65.90	9,687,300	4,843,650	98	15, 17	740	199			244	87	302
data processing/equipment assembly	148,000	115.50	17,094,000	8,524,800	902	15, 17	400	370			455	36	557
<b>Research &amp; Development Park</b>	1,883,600							<b>2,766</b>	<b>2,128</b>	<b>0.769</b>			
research laboratories	293,000	115.50	33,841,500	16,920,750	203	15, 17	740	396			305	87	508
training facilities	293,000	95.20	27,893,600	13,946,800	988	15, 17	740	396			305	83	473
office buildings	293,000	77.30	22,648,900	11,324,450	136	15, 17	370	792			608	60-87	744
clinics	18,600	110.75	2,059,850	1,029,925	12	15, 17	360	53			41	80	53
educational facilities	293,000	95.20	27,893,600	13,946,800	988	15, 17	740	396			305	82	473
"clean" production facilities	293,000	115.50	33,841,500	16,920,750	203	15, 17	400	733			564	36	767
<b>Retail Commercial</b>	489,500							<b>977</b>	<b>380</b>	<b>0.389</b>			
large-scale supermarkets	65,000	75.45	4,904,250	2,452,125	30	15, 17	470	138			54	54	84
home supply & hardware	65,000	74.25	4,826,250	2,413,125	29	15, 17	470	138			54	52	83
electronics	65,000	74.25	4,826,250	2,413,125	29	15, 17	470	138			54	57	83
appliance	65,000	74.25	4,826,250	2,413,125	29	15, 17	470	138			54	57	83
furniture-retail	65,000	74.25	4,826,250	2,413,125	29	15, 17	470	138			54	57	83
auto sales/repair	65,000	77.05	5,008,250	2,504,125	30	15, 17	620	105			40	55, 75	70
movie theaters	35,000	95.80	3,343,000	1,724,400	21	15, 17	770	47			17	78	38
other retail	63,500	70.25	4,460,875	2,230,438	27	15, 17	470	135			53	53	80
<b>Total</b>	<b>7,457,100</b>				<b>3,792</b>			<b>9,236</b>	<b>11,004</b>	<b>1.616</b>	<b>11,004</b>		<b>14,876</b>

Notes:

\*R.S. Means, Co., Inc., 1989, RSMeans Square Foot Costs: 2000, 21st Annual Edition. Kingston, MA: R.S. Means Co., Inc.

\*\*Assumes labor costs are 58 percent of total costs (Stevens, 2000, Conversation between Don Stevens, AIA, and Geoff Olfend, GAR, Inc., July 18, 2000).

\*\*\*Assumes an average fully burdened labor rate of \$45/hour at 2,080 hours per annum.

\*\*\*\*Lee &amp; Bradford, 1999, Technical Report: 1989 Employment Density. Portland, OR: METRO Growth Management Services Department.

\*\*\*\*\*DOPAA estimate includes the figures given in Table 2.3-4 minus the 3,844 existing on-base employees: 2,810 RSD; 1,034 TOD; and 20 retail-commercial.

\*\*\*\*\*Adjusted to bring operations period employment estimates into line with DOPAA estimates.

Source: GAR, Inc., July 10, 2000.

Table H.2. Construction and Operations Employment SIC Code Allocation Calculations - Scenario B

Land Use Category	Cost/Sq. Ft.* Total Costs			Construction Employment***	Square Feet Per		Operations Employment	DOPAA Emp. Est. ****	Adjustment Factor*****	Adjusted Operat. Employment	SIC Code	Total New Employment
	Sq. Ft.	\$	\$		Employee****	Employee****						
<b>Public Open Space</b>	<b>49,600</b>						<b>93</b>	<b>60</b>	<b>0.731</b>			
schools & other municipal facilities	49,600	95.25	4,724,400	29	15, 17	530	93			68	98	96
<b>Mixed Use/Transit Oriented Design</b>	<b>1,503,100</b>						<b>2,125</b>	<b>3,689</b>	<b>1.736</b>			
transit station (bus terminal)	12,000	91.00	1,092,000	7	15, 17	3,290	4			7	41	14
post office	13,000	81.20	1,056,600	6	15, 17	530	25			43	90	49
library	22,000	100.95	2,220,900	13	15, 17	530	42			73	90	86
hotel/conference center	135,000	98.62	13,313,700	80	15, 17	770	175			304	70	384
administrative offices	264,000	77.30	20,407,200	123	15, 17	740	357			620	81, 83, 85, 87	743
professional services	264,000	77.30	20,407,200	155	15, 17	770	343			595	73	750
apartments/townhouses/condominiums	264,000	98.00	25,872,000	155	15, 17							155
support services	264,000	77.30	20,369,000	246	15, 17	370	714			1,240	73	1,486
retail (restaurants, delis, coffee shops, dry cleaners, gift sh	265,100	74.25	39,649,500	239	15, 17	570	465			807	58, 72, 59	1,845
<b>Traditional Neighborhood Development</b>	<b>0</b>											
residential - single family	0											
residential - duplexes	0											
residential - townhouses	0											
residential - apartments	0											
<b>Multi-Family Residential</b>	<b>553,000</b>											
garden apartments	184,000	98.00	18,032,000	100	15, 17							100
condominiums	184,000	98.00	18,032,000	100	15, 17							100
multi-family detached	185,000	61.69	11,412,650	69	15, 17							69
<b>Light Industrial</b>	<b>1,640,900</b>						<b>2,988</b>	<b>3,674</b>	<b>1.230</b>			
light manufacturing	328,000	65.90	21,615,200	130	15, 17	367	894			1,100	35, 36, 38	1,230
warehouse/distribution facilities	328,000	62.90	17,351,200	104	15, 17	3,290	100			123	42	227
printing plants	328,000	65.90	21,615,200	130	15, 17	450	729			897	27	1,027
material testing laboratories	328,000	65.90	21,615,200	130	15, 17	740	443			545	87	675
data processing/equipment assembly	328,900	115.50	37,967,950	228	15, 17	400	822			1,011	35	1,239
<b>Research &amp; Development Park</b>	<b>1,331,900</b>						<b>2,843</b>	<b>1,848</b>	<b>0.650</b>			
research laboratories (Note: more light manufacturing)	263,000	65.90	17,331,700	104	15, 17	367	716			465	87	569
training facilities	263,000	95.20	25,037,600	150	15, 17	740	366			231	83	381
office buildings	263,000	77.30	20,329,900	122	15, 17	370	711			462	60-67	584
clinics	18,600	110.75	2,059,950	12	15, 17	350	53			34	80	46
educational facilities	263,000	95.20	25,037,600	150	15, 17	740	366			231	82	381
"clean" production facilities	261,300	115.50	30,181,150	181	15, 17	400	653			424	35	605
<b>Retail Commercial</b>	<b>0</b>											
large-scale supermarkets	0											
home supply & hardware	0											
electronics	0											
appliance	0											
furniture-retail	0											
auto sales/repair	0											
movie theaters	0											
other retail	0											
<b>Total</b>	<b>5,078,500</b>			<b>2,777</b>			<b>7,688</b>	<b>9,279</b>		<b>9,260</b>		<b>12,857</b>

Notes:

\*R.S. Means, Co., Inc., 1999, RSMeans Square Foot Costs: 2000, 21st Annual Edition. Hingham, MA: R.S. Means Co., Inc.

\*\*Assumes labor costs are 50 percent of total costs (Clevens, 2003).

\*\*\*Assumes an average fully burdened labor rate of \$40/hour at 2,080 hours per annum.

\*\*\*\*Yee &amp; Brookford, 1999, Technical Report: 1999 Employment Density. Portland, OR: METRO Growth Management Services Department.

\*\*\*\*\*DOPAA estimate includes the figures given in Table 2.3-4 minus the 3,844 existing on-base employees: 2,810 R&amp;D; 1,194 TOD; and 20 retail-commercial.

\*\*\*\*\*Adjustment to bring operations period employment estimates into line with DOPAA estimates

Source: GARI, Inc., July 10, 2000

Table H.3. Construction and Operations Employment SIC Code Allocation Calculations - Scenario C

Land Use Category	Sq. Ft.	Cost/Sq. Ft.*	Total Costs	Labor Costs**	Construction Employment***	SIC Code	Square Foot Per Employee****	Operations Employment	DOPAA Emp. Est. *****	Adjustment Factor*****	Adjusted Oper. Employment	SIC Code	Total New Employment
<b>Public Open Space</b>	<b>70,000</b>							<b>133</b>	<b>25</b>	<b>0.108</b>			
schools & other municipal facilities	70,000	95.25	6,667,500	3,333,750	40	15, 17	530	133			25	98	65
<b>Mixed Use/Transit Oriented Design</b>	<b>3,624,000</b>							<b>5,140</b>	<b>8,806</b>	<b>1.713</b>			
transit station (bus terminal)	12,000	91.00	1,092,000	546,000	7	15, 17	3,290	4			7	41	14
post office	13,000	81.20	1,055,600	527,800	6	15, 17	530	25			43	90	49
library	22,000	100.95	2,220,900	1,110,450	13	15, 17	530	42			72	90	85
hotel/conference center	135,000	98.62	13,313,700	6,656,850	80	15, 17	770	175			300	70	380
administrative offices	688,000	77.30	53,182,400	26,591,200	320	15, 17	740	930			1,593	01, 83, 86, 87	1,913
professional services	688,000	77.30	53,182,400	26,591,200	320	15, 17	770	894			1,531	73	1,851
apartments/townhouses/condominiums	688,000	98.00	67,424,000	33,712,000	405	15, 17							405
support services	688,000	77.30	53,182,400	26,591,200	320	15, 17	370	1,859			3,187	73	3,507
retail (restaurants, delis, coffee shops, dry cleaners, gift shops)	680,000	74.25	51,232,500	25,616,250	308	15, 17	570	1,211			2,074	58, 72, 59	2,382
<b>Traditional Neighborhood Development</b>	<b>1,360,000</b>												
residential - single family	340,000	67.05	22,797,000	11,398,500	137	15, 17							137
residential - duplexes	340,000	60.75	20,655,000	10,327,500	124	15, 17							124
residential - townhouses	340,000	61.89	20,974,600	10,487,300	126	15, 17							126
residential - apartments	340,000	98.00	33,320,000	16,660,000	200	15, 17							200
<b>Multi-Family Residential</b>	<b>552,000</b>												
garden apartments	184,000	98.00	18,032,000	9,016,000	100	15, 17							100
condominiums	184,000	98.00	18,032,000	9,016,000	100	15, 17							100
multi-family detached	184,000	61.89	11,350,960	5,675,480	68	15, 17							68
<b>Light Industrial</b>	<b>164,900</b>							<b>2,988</b>	<b>3,694</b>	<b>1.236</b>			
light manufacturing	328,000	65.90	21,615,200	10,807,600	132	15, 17	367	894			1,105	35, 36, 38	1,237
warehouse distribution facilities	328,000	52.90	17,351,200	8,675,600	104	15, 17	3,290	100			124	42	228
printing plants	328,000	65.90	21,615,200	10,807,600	132	15, 17	450	729			901	27	1,033
material testing laboratories	328,000	65.90	21,615,200	10,807,600	132	15, 17	740	443			548	87	680
data processing equipment assembly	328,900	115.50	37,987,950	18,993,975	228	15, 17	400	822			1,016	36	1,244
<b>Research &amp; Development Park</b>	<b>1,343,000</b>							<b>2,504</b>	<b>1,040</b>	<b>0.738</b>			
research laboratories	265,000	115.50	30,607,500	15,303,750	184	15, 17	740	358			264	87	448
training facilities	265,000	95.20	25,228,000	12,614,000	152	15, 17	740	358			264	83	416
office buildings	265,000	77.30	20,484,500	10,242,250	123	15, 17	370	716			528	60-67	651
clinics	18,000	110.75	1,993,500	996,750	12	15, 17	350	51			38	80	50
educational facilities	265,000	95.20	25,228,000	12,614,000	152	15, 17	740	358			264	82	416
"clean" production facilities	265,000	115.50	30,607,500	15,303,750	184	15, 17	400	663			489	35	673
<b>Retail Commercial</b>	<b>0</b>								<b>0</b>				
large-scale supermarkets													
home supply & hardware													
electronic													
appliance													
furniture-retail													
auto sales/repair													
movie theaters													
other retail													
<b>Total</b>	<b>8,589,000</b>				<b>4,225</b>			<b>10,765</b>	<b>14,373</b>		<b>54,373</b>		<b>18,598</b>

Notes:

\* R.S. Means, Co., Inc., 1999, *Building Square Foot Costs*, 2000, 21st Annual Edition. Kingston, MA: R.S. Means Co., Inc.

\*\* Assumes labor costs are 50 percent of total costs (Stevens, 2003).

\*\*\* Assumes an average fully burdened labor rate of \$40/hour at 2,080 hours per annum.

\*\*\*\* Yee & Brookford, 1999, *Technical Report: 1999 Employment Density*. Portland, OR: METRO Growth Management Services Department.

\*\*\*\*\* DOPAA estimate includes the figures given in Table 2.3-4 minus the 3,844 existing on-base employees: 2,610 R&amp;D; 1,194 TOD; and 30 retail-commercial.

\*\*\*\*\* Adjustment to bring operations period employment estimates into line with DOPAA estimates.

Source: GARI, Inc., July 10, 2000.

Table H-4. Assumed Cumulative Growth of Direct Employment by SIC Code, 2001-2020 - Scenario A

SIC CODE	EMI 53-SECTOR CODE	Existing Empl.	New Employment Counts	Opera.	Year																			
					2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
15	23		1,130		23	23	23	23	23	57	57	57	57	57	74	74	74	74	74	74	74	74	74	72
17	23		2,654		53	53	53	53	53	133	133	133	133	133	172	172	172	172	172	172	172	172	172	174
27	17			402	8	16	24	32	40	60	80	100	120	140	168	194	220	246	272	298	324	350	376	402
35	6			164	3	6	9	12	15	23	31	39	47	55	66	77	88	99	110	121	132	143	154	164
36	7			1,183	24	48	72	96	120	179	238	297	356	415	491	567	644	721	798	875	952	1,029	1,106	1,183
38	10			164	3	6	9	12	15	23	31	39	47	55	66	77	88	99	110	121	132	143	154	164
41	26			7	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
42	25			55	1	2	3	4	5	8	11	14	17	20	23	26	29	32	35	38	42	46	50	55
52	36			54	1	2	3	4	5	8	11	14	17	20	23	26	29	32	35	38	42	46	50	54
53	36			53	1	2	3	4	5	8	11	14	17	20	23	26	29	32	35	38	42	46	50	53
54	36			54	1	2	3	4	5	8	11	14	17	20	23	26	29	32	35	38	42	46	50	54
55	36			20	0	10	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
57	36			162	3	6	9	12	15	21	29	36	43	50	61	72	83	94	105	116	127	138	149	162
58	35			537	11	22	33	44	55	82	109	136	163	190	220	257	292	327	362	397	432	467	502	537
59	36			537	11	22	33	44	55	82	109	136	163	190	220	257	292	327	362	397	432	467	502	537
60	31			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
61	33			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
62	33			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
63	32			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
64	32			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
65	34			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
66	33			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
67	33			76	0	0	2	4	6	10	14	18	22	26	31	36	41	46	51	56	61	66	71	76
70	38			301	6	12	18	24	30	45	60	75	90	105	124	143	162	181	201	221	241	261	281	301
72	39			536	11	22	33	44	55	81	107	133	159	185	220	255	290	325	360	395	430	465	500	536
73	42			3,640	70	140	210	280	352	534	716	898	1,080	1,262	1,503	1,743	1,979	2,215	2,451	2,687	2,925	3,163	3,402	3,640
75	41			20	0	0	0	0	2	7	7	7	7	7	20	20	20	20	20	20	20	20	20	20
78	44			17	0	0	0	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
80	45			41	0	0	0	0	4	8	12	15	15	15	41	41	41	41	41	41	41	41	41	41
81	46			308	6	12	18	24	30	44	58	72	87	102	123	144	168	188	208	228	248	268	288	308
82	47			305	6	12	18	24	30	44	58	72	87	102	123	144	168	188	208	228	248	268	288	305
83	48			613	12	24	36	48	60	90	120	150	180	210	261	302	343	384	425	465	505	545	572	613
86	48			308	6	12	18	24	30	44	58	72	87	102	123	144	168	188	208	228	248	268	288	308
87	46			855	17	34	51	68	85	128	171	214	257	300	355	410	465	520	575	631	687	743	799	855
90	51, 52	3,844		115	2	4	6	8	10	16	22	28	34	40	47	54	61	68	75	83	91	99	107	115
98	50			25	12	13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Total		3,844	3,792	11,084	294	512	753	988	1,216	1,802	2,431	2,870	3,525	4,072	4,887	5,608	6,331	7,042	7,754	8,467	9,186	9,905	10,612	11,330

Note #1: Totals for 2001-2020 represent new net additional employment. Add existing employment of 3,844 to 11,330, and subtract 246 construction workers to arrive at DOE estimate of Direct Employment in 2020.

Note #2: Construction employment is not cumulative over time, but rather constant within the three separate time periods (development phases).

SIC = Standard Industrial Code

EMI = Regional Economic Models, Inc.

Source: EAR, Inc., July 10, 2000

Table H-5. Assumed Cumulative Growth of Direct Employment by SIC Code, 2001-2020 - Scenario B

SIC CODE	REM 53-SECTOR CODE	Existing Employ.	New Employment Const.	Oper.	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
15	23		833		15	17	17	17	17	42	42	42	42	40	54	54	54	54	54	54	54	54	54	54
17	23		1,944		39	39	39	39	39	97	97	97	97	97	126	126	126	126	126	126	126	126	126	126
27	17		897		18	36	54	72	90	135	180	225	270	315	373	431	489	547	605	663	721	779	837	897
35	6		521		10	20	30	40	52	78	104	130	156	182	216	250	284	318	352	386	420	454	488	521
36	7		1,956		39	78	117	156	196	294	392	490	588	686	813	940	1,067	1,194	1,321	1,448	1,575	1,702	1,829	1,956
38	10		522		10	20	30	40	52	78	104	130	156	182	216	250	284	318	352	383	420	454	488	522
41	26		7		3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
42	25		123		2	4	6	8	12	18	24	30	36	43	51	59	67	75	83	91	99	107	115	123
52	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	35		269		5	10	15	20	27	40	53	66	79	94	111	128	145	162	179	196	213	230	247	269
59	36		269		5	10	15	20	27	40	53	66	79	94	111	128	145	162	179	196	213	230	247	269
60	31		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
61	33		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
62	33		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
63	32		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
64	32		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
65	34		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
66	33		57		0	0	5	6	6	9	12	15	18	20	23	26	29	32	35	38	41	44	47	57
67	33		63		0	0	2	4	6	13	16	19	22	22	26	30	34	38	42	46	50	54	60	63
70	38		304		6	12	18	24	30	45	60	75	90	106	124	143	162	181	201	221	241	261	281	304
72	39		269		5	10	15	20	27	40	53	66	79	94	111	128	145	162	179	196	213	230	247	269
73	42		1,835		36	72	108	144	184	275	366	457	548	642	761	880	999	1,118	1,237	1,356	1,475	1,594	1,713	1,835
75	41		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	44		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	45		34		0	0	0	0	3	6	9	12	12	12	14	16	18	20	22	24	26	28	30	34
81	46		155		3	6	9	12	16	23	30	37	44	54	64	74	84	94	104	114	124	134	144	155
82	47		231		4	8	14	19	23	34	45	56	67	81	96	111	126	141	156	172	187	202	217	231
83	48		386		7	14	21	28	39	58	77	96	115	135	160	185	210	235	260	285	310	335	360	386
86	48		155		3	6	9	12	16	23	30	37	44	54	64	74	84	94	104	114	124	134	144	155
87	46		700		14	28	42	56	70	105	140	175	210	245	290	335	380	425	470	515	560	605	650	700
90	51, 52	3,844	116		2	4	6	8	12	17	22	27	32	41	51	61	68	75	82	89	96	103	110	116
98	60		68		0	2	4	7	7	10	13	16	19	24	28	32	36	40	44	48	52	56	60	68
Total		3,844	2,777	9,279	226	403	613	795	994	1,541	2,001	2,461	2,918	3,390	4,026	4,624	5,217	5,810	6,404	6,996	7,493	8,187	8,783	9,459

Note #1: Totals for 2001-2020 represent new net additional employment. Add existing employment of 3,844 to 9,459, and subtract 180 construction workers to arrive at DOPAA estimate of Direct Employment in 2020.

Note #2: Construction employment is not cumulative over time, but rather constant within the three separate time periods (development phases).

SIC = Standard Industrial Code

REM = Regional Economic Models, Inc.

Source: QAR, Inc., July 10, 2000

Table H-6. Assumed Cumulative Addition of Direct Employment by SIC Code, 2001-2020 - Scenario C

SIC CODE	REM 53-SECTOR CODE	Existing Employ.	New Employment Const.	Oper.	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
15	23		1,268		25	25	25	25	26	63	63	63	63	63	62	62	62	62	62	62	62	62	62	62
17	23		2,957		58	58	58	58	58	148	148	148	148	148	192	192	192	192	192	192	192	192	192	192
27	17		901		18	36	54	72	90	135	180	225	270	315	373	431	489	547	605	663	721	779	837	901
35	6		388		7	14	21	28	37	55	73	91	109	129	153	177	201	225	249	273	297	321	345	368
36	7		1,873		37	74	111	148	187	281	375	469	563	656	778	900	1,022	1,144	1,266	1,388	1,510	1,632	1,754	1,873
38	10		389		7	14	21	28	36	54	72	90	108	129	153	177	201	225	249	273	297	321	345	369
41	26		7		3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
42	25		124		2	4	6	8	12	18	24	30	36	43	51	59	67	75	83	91	99	108	116	124
52	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	36		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	35		691		13	26	39	52	69	103	137	171	205	242	287	332	377	422	467	512	536	581	626	691
59	36		691		13	26	39	52	69	103	137	171	205	242	287	332	377	422	467	512	536	581	626	691
60	31		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
61	33		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
62	33		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
63	32		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
64	32		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
65	34		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
66	33		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
67	33		66		0	0	2	4	6	10	14	18	22	23	31	36	41	46	51	56	61	66	66	66
70	38		300		6	12	18	24	30	45	60	75	90	105	124	143	162	181	201	221	241	261	281	300
72	39		692		14	28	42	56	69	103	137	171	205	242	287	332	377	422	467	512	557	602	647	692
73	42		4,717		94	188	282	376	470	705	940	1,175	1,410	1,650	1,895	2,262	2,568	2,874	3,180	3,486	3,792	4,098	4,404	4,717
75	41		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	44		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	45		38		0	0	0	0	4	6	8	10	13	13	18	21	24	27	30	33	38	38	38	38
81	46		398		8	16	24	32	40	60	80	100	120	140	166	192	218	244	270	296	322	348	374	398
82	47		264		5	10	15	20	26	39	52	65	78	92	109	126	143	160	177	194	211	228	245	264
83	48		662		13	26	39	52	66	99	132	165	198	232	275	318	361	404	447	490	533	576	619	662
86	48		398		8	16	24	32	40	60	80	100	120	140	166	192	218	244	270	296	322	348	374	398
87	46		1,212		24	48	72	96	120	180	240	300	360	424	503	582	661	740	819	898	977	1,056	1,135	1,212
90	51, 52	3,844	115		2	4	6	8	12	18	24	30	36	40	48	56	64	72	80	88	96	104	112	115
98	60		25		12	13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Total		3,844	4,225	14,373	370	646	945	1,232	1,542	2,387	3,106	3,825	4,545	5,261	6,288	7,226	8,164	9,102	10,041	10,980	11,879	12,816	13,712	14,647

Note #1: Totals for 2001-2020 represent new net additional employment. Add existing employment of 3,844 to 14,647 and subtract 274 construction workers to arrive at DOPAA estimate of Direct Employment in 2020.

Note #2: Construction employment is not cumulative over time, but rather constant within the three separate time periods (development phases).

SIC = Standard Industrial Code

REM = Regional Economic Models, Inc.

Source: QAR, Inc., July 10, 2000



Table H.7. Summary Economic Projections, 2001-2020 - Scenario A

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Emp (Thous)	949.689	965.996	978.661	991.587	1005.43	1019.632	1028.807	1037.738	1047.275	1056.676	1066.181	1074.012	1080.899	1087.659	1094.26	1100.519	1107.134	1113.605	1119.633	1124.796
Total Emp As % of US	0.589	0.571	0.573	0.574	0.576	0.577	0.578	0.579	0.579	0.58	0.581	0.582	0.582	0.583	0.584	0.585	0.586	0.587	0.588	0.589
Priv Non-Farm Emp (Thous)	758.693	772.491	782.72	793.195	804.671	816.509	823.501	830.334	837.785	845.295	852.938	859.312	864.847	870.292	875.732	880.887	886.501	892.044	897.12	901.44
Priv Non-Farm Emp As % of US	0.537	0.539	0.541	0.541	0.543	0.544	0.544	0.544	0.545	0.545	0.546	0.546	0.547	0.547	0.548	0.549	0.55	0.551	0.552	0.553
GRP (Bil 92\$)	42.623	43.519	44.477	45.486	46.543	47.677	48.623	49.99	50.602	51.614	52.845	53.606	54.529	55.46	56.395	57.32	58.281	59.229	60.175	61.081
Pers Inc (Bil Nom \$)	41.596	43.666	45.762	47.923	50.127	52.413	54.732	57.075	59.546	62.067	64.653	67.152	69.651	72.279	74.998	77.771	80.712	83.721	86.822	89.884
Pers Inc As % of US	0.517	0.521	0.524	0.527	0.53	0.532	0.535	0.536	0.539	0.54	0.542	0.543	0.544	0.545	0.546	0.547	0.547	0.549	0.55	0.551
Disp Pers Inc (Bil Nom \$)	36.58	38.46	40.365	42.332	44.337	46.416	48.527	50.659	52.908	55.202	57.553	59.825	62.094	64.481	66.951	69.468	72.139	74.872	77.688	80.466
PCE-Price Index 92\$	114.772	117.426	120.111	122.824	125.583	128.396	131.268	134.199	137.194	140.249	143.369	146.529	149.739	153.008	156.341	159.73	163.203	166.751	170.385	174.086
Real Disp Pers Inc (Bil 92\$)	31.872	32.753	33.606	34.465	35.305	36.151	36.969	37.749	38.564	39.36	40.144	40.928	41.668	42.442	43.234	43.991	44.732	45.491	46.222	46.922
Real Disp Pers Inc Per Cap (Thous 92\$)	19.619	19.813	19.992	20.175	20.345	20.522	20.693	20.844	21.011	21.168	21.315	21.411	21.489	21.584	21.684	21.779	21.896	22.005	22.11	22.181

Source: RIM model output, Scenario A.

Table H.8. Summary Economic Projections, 2001-2020 - Scenario A - Differences With No Action Alternative

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Emp (Thous)	0.5365	0.9215	1.341	1.613	2.14	3.343	4.302	5.255	6.201	7.146	8.604	9.655	11.13	12.39	13.66	14.95	16.33	17.59	18.92	20.28
Total Emp As % of US	0.000322	0.000545	0.000785	0.000934	0.001225	0.001892	0.002417	0.00293	0.003431	0.003924	0.00469	0.005337	0.006062	0.006638	0.007286	0.007939	0.008638	0.009271	0.009938	0.01062
Priv Non-Farm Emp (Thous)	0.5153	0.8829	1.269	1.518	2.018	3.175	4.076	4.962	5.835	6.701	8.069	9.219	10.39	11.54	12.69	13.86	15.11	16.24	17.44	18.67
Priv Non-Farm Emp As % of US	0.000365	0.000616	0.000877	0.001037	0.001361	0.002114	0.002693	0.003253	0.003795	0.004324	0.005166	0.005861	0.006664	0.007262	0.00794	0.008631	0.009372	0.01004	0.01074	0.01146
GRP (Bil 92\$)	0.02359	0.04192	0.06314	0.07947	0.1075	0.1715	0.2262	0.2835	0.3428	0.4047	0.4956	0.5815	0.6721	0.7661	0.865	0.9693	1.082	1.195	1.317	1.445
Pers Inc (Bil Nom \$)	0.01694	0.03153	0.04863	0.06192	0.0854	0.1353	0.1824	0.233	0.2871	0.3447	0.4272	0.5075	0.5836	0.6649	0.7519	0.8348	0.9261	1.112	1.236	1.366
Pers Inc As % of US	0.00021	0.000375	0.000557	0.000681	0.000903	0.001374	0.001781	0.00219	0.002597	0.003001	0.003583	0.004105	0.004634	0.00516	0.005687	0.006215	0.00677	0.007291	0.007828	0.008369
Disp Pers Inc (Bil Nom \$)	0.01416	0.0265	0.04104	0.05249	0.07256	0.115	0.1554	0.199	0.2458	0.2958	0.3671	0.4388	0.5118	0.5914	0.6762	0.7683	0.8655	0.9656	1.074	1.189
PCE Price Index 92\$	0.008751	0.01774	0.02801	0.03616	0.04834	0.07324	0.09795	0.1233	0.1489	0.1744	0.2093	0.2429	0.2775	0.312	0.3469	0.382	0.4191	0.4544	0.4907	0.5282
Real Disp Pers Inc (Bil 92\$)	0.009905	0.01762	0.02634	0.0326	0.0442	0.06895	0.09084	0.1137	0.1375	0.1622	0.1977	0.2308	0.2654	0.3012	0.3383	0.3766	0.4179	0.458	0.5005	0.5443
Real Disp Pers Inc Per Cap (Thous 92\$)	0.004705	0.006965	0.008078	0.00762	0.009382	0.01577	0.01802	0.01926	0.01951	0.01904	0.02207	0.02194	0.02137	0.02009	0.01831	0.01625	0.01434	0.01107	0.00827	0.005997
Population (Thous)	0.1151	0.3419	0.6387	0.9709	1.373	2.008	2.836	3.784	4.842	5.993	7.333	8.835	10.44	12.15	13.94	15.82	17.77	19.8	21.87	24.01
Pop As % of US	4.15E-05	0.000122	0.000227	0.000342	0.00048	0.000695	0.000975	0.00129	0.001637	0.00201	0.002439	0.002914	0.003416	0.003942	0.004497	0.005049	0.005629	0.006219	0.006817	0.007424

Source: RSH model output, Scenario A.



Table H.9. Summary Economic Projections, 2001-2020 - Scenario B

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Emp (Thous)	949,615	966,903	979,59	991,604	1006,32	1019,456	1029,617	1037,544	1047,073	1056,483	1065,849	1073,68	1080,557	1087,318	1093,933	1100,206	1106,775	1112,645	1119,417	1124,782
Total Emp As % of US	0.568	0.571	0.573	0.574	0.576	0.577	0.578	0.578	0.579	0.58	0.581	0.581	0.582	0.583	0.583	0.584	0.586	0.587	0.588	0.589
Priv Non-Farm Emp (Thous)	758,634	772,414	782,669	793,24	804,591	816,369	823,353	830,187	837,638	845,15	852,671	859,052	864,584	870,037	875,498	880,674	886,252	891,21	897,039	901,56
Priv Non-Farm Emp As % of US	0.537	0.539	0.541	0.542	0.543	0.544	0.544	0.544	0.545	0.545	0.546	0.546	0.546	0.547	0.548	0.549	0.55	0.551	0.552	0.553
GRP (Bil 92\$)	42,825	43,524	44,49	45,939	46,568	47,717	48,68	49,686	50,696	51,732	52,786	53,779	54,734	55,702	56,675	57,641	58,645	59,614	60,642	61,613
Pers Inc (Bil Nom \$)	41,595	43,665	45,762	47,928	50,13	52,416	54,737	57,083	59,557	62,081	64,666	67,189	69,673	72,306	75,031	77,81	80,756	83,741	86,883	89,965
Pers Inc As % of US	0.517	0.521	0.524	0.527	0.53	0.532	0.535	0.537	0.539	0.541	0.542	0.543	0.544	0.545	0.546	0.547	0.548	0.549	0.55	0.551
Disp Pers Inc (Bil Nom \$)	36,579	38,459	40,365	42,336	44,339	46,418	48,531	50,665	52,917	55,214	57,565	59,839	62,113	64,504	66,979	69,502	72,177	74,89	77,74	80,535
PCE-Price Index 92\$	114,771	117,423	120,109	122,823	125,58	128,391	131,262	134,192	137,187	140,242	143,358	146,517	149,726	152,986	156,328	159,718	163,19	166,726	170,371	174,078
Real Disp Pers Inc (Bil 92\$)	31,871	32,753	33,607	34,489	35,307	36,154	36,973	37,796	38,573	39,37	40,154	40,841	41,484	42,161	42,845	43,515	44,229	44,918	45,63	46,354
Real Disp Pers Inc Per Cap (Thous 92\$)	19,619	19,613	19,993	20,178	20,347	20,525	20,697	20,849	21,018	21,176	21,324	21,422	21,502	21,6	21,702	21,799	21,917	22,024	22,137	22,212

Source: RIMA model output, Scenario B.

Table H.10. Summary Economic Projections, 2001-2020 - Scenario B Differences With No Action Alternative

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Emp (Thous)	0.4622	0.6284	1.26	1.63	2.029	3.167	4.112	5.06	5.999	6.952	8.273	9.523	10.79	12.06	13.33	14.63	15.97	16.63	18.7	20.26
Total Emp As % of US	0.000277	0.00049	0.000738	0.000944	0.001162	0.001793	0.00231	0.002821	0.003319	0.003818	0.00451	0.005157	0.005808	0.006455	0.007112	0.007773	0.008448	0.008764	0.009824	0.01061
Priv Non-Farm Emp (Thous)	0.4556	0.6066	1.218	1.563	1.938	3.035	3.927	4.814	5.686	6.565	7.801	8.958	10.12	11.28	12.46	13.64	14.86	15.41	17.36	18.79
Priv Non-Farm Emp As % of US	0.000323	0.000563	0.000841	0.001067	0.001307	0.002021	0.002594	0.003156	0.003698	0.004236	0.004995	0.005696	0.006367	0.007091	0.007793	0.008498	0.009218	0.00952	0.01069	0.01153
GRP (Bil 92\$)	0.02515	0.04777	0.07579	0.1024	0.1326	0.2116	0.2829	0.3592	0.4388	0.5227	0.6371	0.7543	0.8778	1.007	1.145	1.291	1.446	1.581	1.784	1.977
Pers Inc (Bil Nom \$)	0.01563	0.03054	0.04893	0.06709	0.08751	0.1377	0.187	0.2404	0.2975	0.3586	0.4403	0.5247	0.6152	0.7115	0.8146	0.924	1.042	1.133	1.296	1.448
Pers Inc As % of US	0.000194	0.000364	0.000561	0.000738	0.000925	0.001399	0.001827	0.00226	0.00269	0.003123	0.003693	0.004244	0.004802	0.00536	0.005925	0.00649	0.007068	0.007425	0.008212	0.008896
Disp Pers Inc (Bil Nom \$)	0.01308	0.0257	0.04133	0.05688	0.07441	0.1171	0.1594	0.2054	0.2547	0.3077	0.3783	0.4516	0.5302	0.6142	0.7041	0.7998	0.9031	0.9832	1.126	1.258
PCE-Price Index 92\$	0.007408	0.01598	0.02554	0.03534	0.04572	0.06874	0.09221	0.1168	0.1417	0.167	0.1989	0.2314	0.265	0.2991	0.3338	0.3693	0.4058	0.4288	0.4766	0.5208
Real Disp Pers Inc (Bil 92\$)	0.009338	0.01754	0.02727	0.0364	0.04641	0.0719	0.09554	0.1203	0.146	0.1727	0.2095	0.2441	0.2812	0.3197	0.3597	0.4011	0.4446	0.4754	0.5347	0.5951
Real Disp Pers Inc Per Cap (Thous 92\$)	0.004482	0.008824	0.009096	0.01023	0.01123	0.01845	0.02204	0.02473	0.02642	0.02749	0.03131	0.03325	0.03465	0.03541	0.03579	0.0358	0.03567	0.02994	0.03604	0.03643

Source: RIMA model output, Scenario B.

Table H.11. Summary Economic Projections, 2001-2020 - Scenario C

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Emp (Thous)	949,786	966,221	979,014	992,191	1006,129	1020,711	1030,242	1039,533	1049,429	1059,18	1069,126	1077,442	1084,796	1092,045	1099,141	1105,765	1112,532	1119,93	1126,407	1132,062
Priv Non-Farm Emp (Thous)	758,789	772,711	783,063	793,781	805,34	817,545	824,875	832,045	839,834	847,669	855,723	862,548	868,514	874,409	880,303	885,78	891,512	897,939	903,416	908,189
GRP (Bil \$2\$)	42,629	43,533	44.5	45,524	46.59	47,751	48,723	49,719	50.76	51,803	52,874	53,88	54,848	55,828	56,813	57,799	58,754	59,816	60,821	61,79
Pers Inc (Bil Nom \$)	41,599	43,676	45,776	47,948	50,159	52,462	54,799	57,163	59,656	62.2	64,815	67,346	69,88	72,545	75,304	78,115	81,08	84,158	87,308	90,421
Disp Pers Inc (Bil Nom \$)	36,583	38,467	40,377	42,353	44,364	46,458	48,594	50,734	53,002	55,316	57,692	59,992	62,292	64,711	67,216	69,767	72,459	75,252	78,11	80,933
PCS-Price Index 92\$	114,774	117,429	120,118	122,836	125,599	128,419	131.3	134,24	137,245	140,309	143,439	146,611	149,833	153,116	156,461	159,862	163,341	166,909	170,596	174,271
Real Disp Pers Inc (Bil 92\$)	31,874	32,758	33,615	34,479	35,322	36,176	37,003	37,794	38,618	39,424	40,221	40,919	41,574	42,263	42,96	43,642	44,36	45,085	45,797	46,441
Real Disp Pers Inc Per Cap (Thous 92\$)	19.62	19.815	19.994	20.18	20.35	20.529	20.702	20.854	21.022	21.179	21.327	21.424	21.503	21.589	21.7	21.794	21.907	22.021	22.125	22.197

Source: RDM model, Scenario C.

Table H.12. Summary Economic Projections, 2001-2020: Scenario C Differences With No Action Alternative

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Emp (Thous)	0.6335	1.147	1.694	2.217	2.839	4.422	5.737	7.049	8.365	9.649	11.55	13.28	15.03	16.78	18.54	20.19	21.72	23.91	25.69	27.54
Total Emp As % of US	0.00038	0.000678	0.000992	0.001284	0.001626	0.002503	0.003223	0.00393	0.004623	0.005298	0.006296	0.007195	0.008091	0.008988	0.009889	0.01073	0.01149	0.0126	0.0135	0.01443
Priv Non-Farm Emp (Thous)	0.6108	1.103	1.612	2.104	2.687	4.211	5.449	6.674	7.883	9.075	10.85	12.45	14.05	15.65	17.26	18.75	20.12	22.14	23.73	25.42
Priv Non-Farm Emp As % of US	0.000433	0.00077	0.001114	0.001436	0.001812	0.002804	0.0036	0.004375	0.005127	0.005895	0.006949	0.007919	0.008881	0.009839	0.0108	0.01168	0.01248	0.01368	0.01462	0.0156
GRP (Bil 92\$)	0.02986	0.06628	0.08622	0.117	0.154	0.2457	0.3296	0.4122	0.5011	0.5935	0.7255	0.8554	0.9912	1.133	1.283	1.438	1.555	1.782	1.962	2.153
Pers Inc (Bil Nom \$)	0.02029	0.03998	0.06295	0.08702	0.1166	0.1839	0.2495	0.3205	0.3967	0.4774	0.589	0.702	0.8223	0.9511	1.089	1.229	1.366	1.549	1.722	1.904
Pers Inc As % of US	0.000252	0.000477	0.00072	0.000957	0.001232	0.001868	0.002437	0.003013	0.003588	0.004157	0.00494	0.005678	0.00642	0.007166	0.007915	0.008636	0.009257	0.01016	0.01091	0.01166
Disp Pers Inc (Bil Nom \$)	0.01886	0.03361	0.05305	0.07373	0.09906	0.1563	0.2126	0.2738	0.3397	0.4097	0.5061	0.6042	0.709	0.8213	0.941	1.065	1.185	1.345	1.496	1.656
PCE Price Index 92\$	0.01015	0.0216	0.03471	0.0483	0.06405	0.09671	0.1299	0.1644	0.1993	0.2342	0.2798	0.3254	0.3722	0.4196	0.4675	0.5136	0.5572	0.6121	0.6621	0.7137
Real Disp Pers Inc (Bil 92\$)	0.01196	0.0226	0.03447	0.04649	0.06069	0.09454	0.1255	0.1579	0.1917	0.2266	0.2749	0.322	0.3708	0.4217	0.4745	0.5275	0.576	0.6428	0.7021	0.7632
Real Disp Pers Inc Per Cap (Thous 92\$)	0.006682	0.006608	0.01097	0.01229	0.01382	0.02271	0.02657	0.02905	0.03018	0.0302	0.03443	0.03543	0.03555	0.0349	0.03354	0.03114	0.02587	0.02753	0.02377	0.02081
Population (Thous)	0.1383	0.4225	0.8018	1.264	1.815	2.659	3.772	5.053	6.49	8.055	9.861	11.89	14.07	16.39	18.84	21.37	23.93	26.66	29.54	32.45
Ppp As % of US	5.00E-05	0.000151	0.000295	0.000445	0.000634	0.000921	0.001295	0.001722	0.002194	0.002701	0.003279	0.003922	0.004603	0.005318	0.006062	0.006824	0.007578	0.008376	0.009206	0.01003

Source: RBEI model output, Scenario C.

**Table H-13. Projected Change In Employment, 2005-2020 - Scenario A**

Industry	Number			Percent Difference with No-Action Alternative		
	2005	2010	2020	2005	2010	2020
<b>Manufacturing - Durables</b>	<b>158</b>	<b>543</b>	<b>1,542</b>	<b>0.59</b>	<b>1.98</b>	<b>5.69</b>
Lumber	0	(0)	(4)	0.01	-0.01	-0.13
Furniture	0	(0)	(2)	0.01	-0.01	-0.10
Stone,Clay,Etc	3	7	13	0.10	0.27	0.52
Primary Metals	2	8	22	0.19	0.61	1.90
Fabricated Metals	4	13	43	0.14	0.44	1.34
Machin & Comput	15	54	154	0.36	1.09	2.71
Electric Equip	120	414	1,179	2.54	8.66	29.35
Motor Vehicles	(0)	(1)	(2)	-0.03	-0.13	-0.46
Rest Transp Equip	(1)	(4)	(15)	-0.03	-0.15	-0.57
Instruments	14	53	157	1.80	7.06	25.07
Misc Manufact	(0)	(1)	(3)	0.00	-0.03	-0.13
<b>Manufacturing - Non-Durables</b>	<b>49</b>	<b>165</b>	<b>475</b>	<b>0.18</b>	<b>0.63</b>	<b>1.92</b>
Food	1	2	3	0.01	0.03	0.03
Tobacco Manuf	(0)	(0)	(0)	0.00	-0.01	-0.04
Textiles	(0)	(1)	(2)	-0.02	-0.10	-0.32
Apparel	0	(1)	(2)	0.00	-0.01	-0.07
Paper	0	(0)	(1)	0.00	-0.01	-0.05
Printing	48	167	483	0.79	2.69	7.38
Chemicals	(0)	(1)	(3)	-0.01	-0.05	-0.22
Petro Products	0	0	0	0.03	0.08	0.12
Rubber	(0)	(0)	(1)	0.00	-0.02	-0.05
Leather	(0)	(1)	(2)	-0.02	-0.08	-0.29
<b>Mining</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>0.04</b>	<b>0.09</b>	<b>0.18</b>
<b>Construction</b>	<b>175</b>	<b>488</b>	<b>954</b>	<b>0.33</b>	<b>0.93</b>	<b>1.86</b>
<b>Transportation/Public Utilities</b>	<b>40</b>	<b>112</b>	<b>290</b>	<b>0.11</b>	<b>0.32</b>	<b>0.88</b>
Railroad	0	1	3	0.06	0.19	0.53
Trucking	15	52	143	0.17	0.58	1.69
Local&Interurban	10	16	37	0.44	0.70	1.44
Air Transportation	5	17	54	0.07	0.20	0.59
Other Transport	0	0	(0)	0.01	0.01	-0.01
Communication	7	19	36	0.06	0.18	0.43
Public Utilities	2	6	17	0.10	0.32	0.89
<b>Finance/Insurance/Real Estate</b>	<b>122</b>	<b>454</b>	<b>1,307</b>	<b>0.14</b>	<b>0.52</b>	<b>1.46</b>
Banking	30	101	278	0.20	0.70	2.10
Insurance	20	75	206	0.07	0.24	0.63
Credit & Finance	34	136	378	0.24	0.98	3.10
Real Estate	39	143	444	0.15	0.51	1.43
<b>Retail Trade</b>	<b>381</b>	<b>1,202</b>	<b>3,293</b>	<b>0.22</b>	<b>0.68</b>	<b>1.79</b>
Eating & Drinking	132	445	1,300	0.21	0.65	1.68
Rest of Retail	249	758	1,993	0.23	0.70	1.87
<b>Wholesale Trade</b>	<b>57</b>	<b>193</b>	<b>559</b>	<b>0.15</b>	<b>0.49</b>	<b>1.39</b>
<b>Services</b>	<b>1,030</b>	<b>3,522</b>	<b>10,190</b>	<b>0.29</b>	<b>0.92</b>	<b>2.42</b>
Hotels	31	106	301	0.24	0.73	1.78
Pers Serv & Rep	82	270	768	0.34	1.09	2.97
Private Household	9	26	70	0.09	0.26	0.67
Auto Rep&Serv	21	72	222	0.14	0.45	1.26
Misc Bus Serv	489	1,738	5,009	0.56	1.83	4.96
Amusem & Rec	20	66	191	0.10	0.29	0.74
Motion Pictures	18	19	19	0.78	0.77	0.75
Medical	8	32	196	0.01	0.03	0.17
Misc Prof Serv	183	630	1,812	0.40	1.26	3.18
Education	48	154	432	0.31	0.97	2.48
Non-Prof Org	122	409	1,167	0.39	1.26	3.47
<b>Agric/Forestry/Fishing Services</b>	<b>6</b>	<b>20</b>	<b>56</b>	<b>0.08</b>	<b>0.24</b>	<b>0.59</b>
<b>Government</b>	<b>122</b>	<b>444</b>	<b>1,611</b>	<b>0.06</b>	<b>0.22</b>	<b>0.75</b>
State and Local	122	444	1,611	0.11	0.38	1.28
Federal Civilian	0	0	0	0.00	0.00	0.00
Federal Military	0	0	0	0.00	0.00	0.00
	0	0	0			
<b>Total Employment</b>	<b>2,140</b>	<b>7,146</b>	<b>20,280</b>	<b>0.21</b>	<b>0.68</b>	<b>1.84</b>

**Table H-14. Population Projections by Age Cohort: Scenario A, No-Action Alternative, and Differences with No-Action Alternative**

San Antonio MSA With Scenario A				San Antonio MSA without Scenario A (No-Action Alternative)			Scenario A (Differences with No-Action Alternative)		
Cohort	2005	2010	2020	2005	2010	2020	2005	2010	2020
0-4 years	160,608	170,069	196,212	160,373	169,138	193,133	235	931	3,079
5-19 years	417,088	454,602	512,618	416,734	452,965	505,443	354	1,637	7,175
20-24 years	129,251	137,328	160,944	129,084	136,694	158,950	167	634	1,994
25-44 years	450,471	448,325	482,386	449,981	446,148	473,820	490	2,177	8,566
45-64 years	382,316	423,957	416,365	382,194	423,385	413,551	122	572	2,814
65 + years	195,551	225,139	315,278	195,546	225,097	314,895	5	42	383
Total	1,735,285	1,859,420	2,083,803	1,733,912	1,853,427	2,059,792	1,373	5,993	24,011

MSA = Metropolitan Statistical Area

**Table H-15. Projected Change In Employment, 2005-2020 - Scenario B**

Industry	Number			Percent Difference with No-Action Alternative		
	2005	2010	2020	2005	2010	2020
<b>Manufacturing - Durables</b>	<b>316</b>	<b>1,098</b>	<b>3,122</b>	<b>1.18</b>	<b>4.00</b>	<b>11.52</b>
Lumber	0	0	(2)	0.01	0.20	-0.08
Furniture	0	0	(1)	0.01	0.01	-0.04
Stone, Clay, Etc	3	8	18	0.10	0.30	0.69
Primary Metals	6	19	51	0.45	14.94	4.48
Fabricated Metals	7	26	86	0.24	0.84	2.66
Machin & Comput	53	183	516	1.25	3.71	9.10
Electric Equip	197	688	1,959	4.16	14.38	48.77
Motor Vehicles	(0)	(1)	(2)	-0.03	-0.13	-0.47
Rest Transp Equip	(1)	(4)	(16)	-0.03	-0.02	-0.60
Instruments	51	180	515	6.43	24.11	82.24
Misc Manufact	0	(0)	(1)	0.00	-0.01	-0.07
<b>Manufacturing - Non-Durables</b>	<b>102</b>	<b>352</b>	<b>1,008</b>	<b>0.38</b>	<b>1.34</b>	<b>4.08</b>
Food	1	3	5	0.02	0.03	0.06
Tobacco Manuf	0	0	0	0.00	0.01	0.00
Textiles	(0)	(1)	(2)	-0.02	-0.09	-0.30
Apparel	0	(0)	(1)	0.00	-0.01	-0.04
Paper	0	1	3	0.03	0.08	0.26
Printing	100	349	1,004	1.65	5.63	15.36
Chemicals	(0)	(1)	(2)	-0.01	-0.04	-0.18
Petro Products	0	0	0	0.04	0.10	0.21
Rubber	0	1	4	0.02	0.04	0.15
Leather	(0)	(1)	(2)	-0.02	-0.10	-0.37
<b>Mining</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>0.04</b>	<b>0.12</b>	<b>0.31</b>
<b>Construction</b>	<b>166</b>	<b>479</b>	<b>1,016</b>	<b>0.31</b>	<b>0.91</b>	<b>1.98</b>
<b>Transportation/Public Utilities</b>	<b>56</b>	<b>171</b>	<b>482</b>	<b>0.16</b>	<b>0.49</b>	<b>1.46</b>
Railroad	1	2	5	0.10	0.31	0.94
Trucking	27	92	269	0.29	1.04	3.18
Local & Interurban	10	18	43	0.45	0.76	1.65
Air Transportation	7	26	90	0.09	0.31	0.97
Other Transport	0	1	2	0.02	0.05	0.11
Communication	9	24	49	0.07	0.22	0.58
Public Utilities	3	8	24	0.13	0.43	1.25
<b>Finance/Insurance/Real Estate</b>	<b>130</b>	<b>439</b>	<b>1,283</b>	<b>0.15</b>	<b>0.50</b>	<b>1.44</b>
Banking	34	114	326	0.23	0.79	2.47
Insurance	22	69	193	0.07	0.22	0.59
Credit & Finance	34	114	310	0.24	0.82	2.53
Real Estate	39	142	454	0.15	0.50	1.46
<b>Retail Trade</b>	<b>293</b>	<b>967</b>	<b>2,741</b>	<b>0.17</b>	<b>0.55</b>	<b>1.49</b>
Eating & Drinking	113	389	1,197	0.18	0.57	1.55
Rest of Retail	181	578	1,544	0.17	0.53	1.45
<b>Wholesale Trade</b>	<b>87</b>	<b>310</b>	<b>940</b>	<b>0.23</b>	<b>0.79</b>	<b>2.33</b>
<b>Services</b>	<b>781</b>	<b>2,724</b>	<b>8,124</b>	<b>0.22</b>	<b>0.71</b>	<b>1.93</b>
Hotels	33	114	331	0.25	0.79	1.96
Pers Serv & Rep	56	189	543	0.23	0.76	2.10
Private Household	9	29	81	0.10	0.29	0.78
Auto Rep & Serv	23	83	274	0.15	0.51	1.55
Misc Bus Serv	326	1,154	3,420	0.37	1.21	3.39
Amusem & Rec	24	82	258	0.11	0.36	1.00
Motion Pictures	0	1	1	0.02	0.05	0.05
Medical	11	43	230	0.01	0.04	0.20
Misc Prof Serv	163	571	1,703	0.36	1.15	2.99
Education	45	153	430	0.30	0.96	2.47
Non-Prof Org	91	304	853	0.29	0.94	2.54
<b>Agric/Forestry/Fishing Services</b>	<b>6</b>	<b>21</b>	<b>63</b>	<b>0.08</b>	<b>0.25</b>	<b>0.67</b>
<b>Government</b>	<b>91</b>	<b>388</b>	<b>1,478</b>	<b>0.05</b>	<b>0.19</b>	<b>0.69</b>
State and Local	91	388	1,478	0.08	0.33	1.17
Federal Civilian	0	0	0	0.00	0.00	0.00
Federal Military	0	0	0	0.00	0.00	0.00
<b>Total Employment</b>	<b>2,090</b>	<b>6,952</b>	<b>20,260</b>	<b>0.20</b>	<b>0.66</b>	<b>1.84</b>

**Table H-16. Population Projections by Age Cohort: Scenario B, No-Action Alternative, and Differences with No-Action Alternative**

San Antonio MSA with Scenario B				San Antonio MSA without Scenario B (No-Action Alternative)			Scenario B (Differences with No-Action Alternative)		
Cohort	2005	2010	2020	2005	2010	2020	2005	2010	2020
0-4 years	160,600	170,032	196,085	160,373	169,138	193,133	227	894	2,952
5-19 years	417,077	454,534	512,313	416,734	452,965	505,443	343	1,569	6,870
20-24 years	129,245	137,303	160,863	129,084	136,694	158,950	161	609	1,913
25-44 years	450,451	448,239	482,031	449,981	446,148	473,820	470	2,091	8,211
45-64 years	382,312	423,936	416,243	382,194	423,385	413,551	118	551	2,692
65 + years	195,550	225,138	315,260	195,546	225,097	314,895	4	41	365
Total	1,735,235	1,859,182	2,082,795	1,733,912	1,853,427	2,059,792	1,323	5,755	23,003

MSA = Metropolitan Statistical Area



**Table H-17. Projected Change in Employment, 2005-2020 - Scenario C**

Industry	Number			Percent Difference With No-Action Alternative		
	2005	2010	2020	2005	2010	2020
<b>Manufacturing - Durables</b>	<b>273</b>	<b>949</b>	<b>3,700</b>	<b>1.02</b>	<b>1.49</b>	<b>9.90</b>
Lumber	0	(0)	(5)	0.00	-0.02	-0.17
Furniture	0	(0)	(2)	0.01	-0.01	-0.12
Stone, Clay, Etc	3	10	19	0.11	0.36	0.75
Primary Metals	5	15	40	0.36	1.18	3.55
Fabricated Metals	6	23	74	0.22	0.74	2.29
Machin & Comput	37	128	356	0.89	2.60	6.27
Electric Equip	187	655	1,869	3.96	13.70	46.55
Motor Vehicles	(0)	(1)	(3)	-0.04	-0.18	-0.63
Rest Transp Equip	(1)	(5)	(21)	-0.04	-0.21	-0.80
Instruments	35	126	359	4.40	16.88	57.39
Misc Manufact	(0)	(1)	(3)	0.00	-0.03	-0.15
<b>Manufacturing - Non-Durables</b>	<b>103</b>	<b>355</b>	<b>1,016</b>	<b>0.39</b>	<b>1.36</b>	<b>4.11</b>
Food	2	4	5	0.02	0.04	0.06
Tobacco Manuf	(0)	(0)	(0)	0.00	0.00	-0.04
Textiles	(0)	(1)	(3)	-0.03	-0.13	-0.43
Apparel	0	(1)	(3)	0.00	-0.01	-0.08
Paper	0	0	1	0.01	0.02	0.06
Printing	102	355	1,023	1.68	5.73	15.64
Chemicals	(0)	(1)	(4)	-0.01	-0.07	-0.29
Petro Products	0	0	0	0.04	0.11	0.19
Rubber	0	0	0	0.01	0.00	0.01
Leather	(0)	(1)	(3)	-0.02	-0.11	-0.44
<b>Mining</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>0.05</b>	<b>0.13</b>	<b>0.29</b>
<b>Construction</b>	<b>192</b>	<b>633</b>	<b>1,278</b>	<b>0.36</b>	<b>1.21</b>	<b>2.49</b>
<b>Transportation/Public Utilities</b>	<b>60</b>	<b>180</b>	<b>490</b>	<b>0.17</b>	<b>0.52</b>	<b>1.48</b>
Railroad	1	2	5	0.10	0.31	0.88
Trucking	27	94	268	0.30	1.05	3.17
Local & Interurban	11	20	50	0.49	0.86	1.93
Air Transportation	8	26	87	0.10	0.32	0.94
Other Transport	0	1	1	0.02	0.03	0.05
Communication	10	28	53	0.09	0.26	0.63
Public Utilities	3	9	26	0.15	0.47	1.34
<b>Finance/Insurance/Real Estate</b>	<b>148</b>	<b>520</b>	<b>1,490</b>	<b>0.17</b>	<b>0.59</b>	<b>1.67</b>
Banking	39	131	360	0.26	0.91	2.73
Insurance	23	77	207	0.08	0.25	0.63
Credit & Finance	36	130	350	0.26	0.93	2.87
Real Estate	50	182	573	0.19	0.65	1.84
<b>Retail Trade</b>	<b>443</b>	<b>1,463</b>	<b>4,067</b>	<b>0.26</b>	<b>0.83</b>	<b>2.21</b>
Eating & Drinking	177	605	1,793	0.28	0.88	2.32
Rest of Retail	266	858	2,275	0.24	0.79	2.13
<b>Wholesale Trade</b>	<b>89</b>	<b>309</b>	<b>903</b>	<b>0.24</b>	<b>0.79</b>	<b>2.24</b>
<b>Services</b>	<b>1,370</b>	<b>4,636</b>	<b>13,400</b>	<b>0.39</b>	<b>1.21</b>	<b>3.18</b>
Hotels	33	109	310	0.24	0.76	1.84
Pers Serv & Rep	106	362	1,025	0.45	1.46	3.96
Private Household	12	37	101	0.12	0.37	0.96
Auto Rep & Serv	27	96	301	0.18	0.59	1.71
Misc Bus Serv	661	2,320	6,668	0.75	2.44	6.60
Amusem & Rec	29	97	287	0.14	0.43	1.11
Motion Pictures	1	1	2	0.03	0.06	0.07
Medical	46	43	274	0.05	0.04	0.24
Misc Prof Serv	252	886	2,546	0.55	1.77	4.47
Education	52	172	464	0.34	1.08	2.67
Non-Prof Org	151	513	1,425	0.49	1.58	4.24
<b>Agric/Forestry/Fishing Services</b>	<b>8</b>	<b>27</b>	<b>78</b>	<b>0.10</b>	<b>0.32</b>	<b>0.82</b>
<b>Government</b>	<b>152</b>	<b>575</b>	<b>2,129</b>	<b>0.08</b>	<b>0.28</b>	<b>0.99</b>
State and Local	152	575	2,129	0.14	0.05	1.69
Federal Civilian	0	0	0	0.00	0.00	0.00
Federal Military	0	0	0	0.00	0.00	0.00
<b>Total Employment</b>	<b>2,839</b>	<b>9,649</b>	<b>27,540</b>	<b>0.28</b>	<b>0.92</b>	<b>2.49</b>

**Table H-18. Population Projections by Age Cohort: Scenario C, No-Action Alternative, and Differences with No-Action Alternative**

San Antonio MSA with Scenario C				San Antonio MSA without Scenario C (No-Action Alternative)			Scenario C (Differences with No-Action Alternative)		
Cohort	2005	2010	2020	2005	2010	2020	2005	2010	2020
0-4 years	160,684	170,392	197,297	160,373	169,138	193,133	311	1,254	4,164
5-19 years	417,203	455,161	515,139	416,734	452,965	505,443	469	2,196	9,696
20-24 years	129,306	137,549	161,645	129,084	136,694	158,950	222	855	2,695
25-44 years	450,627	449,074	485,406	449,981	446,148	473,820	646	2,926	11,586
45-64 years	382,357	424,152	417,345	382,194	423,385	413,551	163	767	3,794
65 + years	195,552	225,152	315,410	195,546	225,097	314,895	6	55	515
<b>TOTAL</b>	<b>1,735,729</b>	<b>1,861,480</b>	<b>2,092,242</b>	<b>1,733,912</b>	<b>1,853,427</b>	<b>2,059,792</b>	<b>1,817</b>	<b>8,053</b>	<b>32,450</b>

MSA = Metropolitan Statistical Area

**Table H-19. Projected Employment (Thousands) By Industry San Antonio MSA -  
No-Action Alternative**

Industry	2005	2010	2020
<b>Manufacturing - Durables</b>	<b>26.797</b>	<b>27.483</b>	<b>27.112</b>
Lumber	2.799	2.866	2.919
Furniture	1.419	1.468	1.659
Stone,Clay, Etc	2.800	2.733	2.583
Primary Metals	1.277	1.259	1.139
Fabricated Metals	2.979	3.065	3.249
Machinery & Computers	4.223	4.927	5.675
Electriconic Equipment	4.728	4.782	4.015
Motor Vehicles	0.535	0.525	0.516
Rest Transportation Equipment	2.537	2.527	2.596
Instruments	0.8	0.745	0.626
Misc. Manufacturing	2.699	2.586	2.135
<b>Manufacturing - Non-Durables</b>	<b>26.410</b>	<b>26.188</b>	<b>24.732</b>
Food	8.456	8.502	8.586
Tobacco Manufacturing	0.041	0.035	0.038
Textiles	1.066	0.963	0.705
Apparel	4.489	4.197	3.196
Paper	1.176	1.225	1.280
Printing	6.0600	6.200	6.538
Chemicals	1.291	1.345	1.342
Petroleum Products	0.103	0.093	0.074
Rubber	2.442	2.485	2.327
Leather	1.286	1.143	0.647
<b>Mining</b>	<b>3.770</b>	<b>3.271</b>	<b>2.306</b>
<b>Construction</b>	<b>53.212</b>	<b>52.464</b>	<b>51.407</b>
<b>Transportation/Public Utilities</b>	<b>35.219</b>	<b>34.605</b>	<b>33.080</b>
Railroad	0.755	0.689	0.566
Trucking	9.067	8.933	8.462
Local & Interurban	2.222	2.341	2.607
Air Transportation	7.643	8.172	9.196
Other Transportation	1.652	1.735	1.913
Communication	11.913	10.768	8.42
Public Utilities	1.967	1.966	1.915
<b>Finance/Insurance/Real Estate</b>	<b>85.538</b>	<b>87.584</b>	<b>89.347</b>
Banking	14.898	14.421	13.222
Insurance	29.81	31.017	32.837
Credit & Finance	14.112	13.891	12.219
Real Estate	26.719	28.255	31.069
<b>Retail Trade</b>	<b>173.482</b>	<b>177.238</b>	<b>183.965</b>
Eating & Drinking	63.865	68.446	77.281
Rest of Retail	109.617	108.792	106.684
<b>Wholesale Trade</b>	<b>37.634</b>	<b>39.258</b>	<b>40.320</b>
<b>Services</b>	<b>352.910</b>	<b>382.182</b>	<b>421.076</b>
Hotels	13.376	14.487	16.904
Personal Serv & Rep	23.919	24.777	25.892
Private Household	9.810	10.018	10.449
Auto Repair & Services	15.147	16.173	17.604
Misc. Business Services	87.817	95.132	100.972
Amusement & Recreation	20.668	22.710	25.774
Motion Pictures	2.306	2.408	2.509
Medical	87.945	98.191	112.981
Misc. Professional Services	45.804	49.904	56.939
Education	15.259	15.951	17.412
Non-Profit Organizations	30.859	32.430	33.640
<b>Agric/Forestry/Fishing Services</b>	<b>7.681</b>	<b>8.313</b>	<b>9.429</b>
<b>Government</b>	<b>193.510</b>	<b>204.199</b>	<b>215.643</b>
State and Local	109.698	117.234	126.244
Federal Civilian	38.736	39.812	40.448
Federal Military	45.076	47.154	48.971
<b>Total Employment</b>	<b>1003.29</b>	<b>1049.531</b>	<b>1104.518</b>

**THIS PAGE INTENTIONALLY LEFT BLANK**

## **APPENDIX I**

### **AGENCY LETTERS AND CERTIFICATIONS**



TEXAS  
HISTORICAL  
COMMISSION

George W. Bush • Governor  
John L. Nau, III • Chairman  
Curtis Tunnell • Executive Director

*The State Agency for Historic Preservation*

February 17, 1999

Lt Col William E. Merrill  
311 CES/CC  
8103 9<sup>th</sup> Street  
Brooks Air Force Base, TX 78235-5355

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, *Preliminary Draft, Historic Building Inventory and Evaluation of Cold War Era Buildings*, Brooks AFB, Beaxr County, TX (N25, N10)

Dear Lt Col Merrill:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from F. Lawrence Oaks, Executive Director of the Texas Historical Commission and the State Historic Preservation Officer. Section 110 of the National Historic Preservation Act mandates federal agencies to inventory, evaluate, and nominate historic properties to the National Register of Historic Places. Under the Defense Appropriations Act of 1991, the DOD is required to review Cold War-era resources for their eligibility to the National Register of Historic Places.

The review staff, led by Gregory Smith, has completed its review of the following properties by applying federal criteria for historical designation:

- Cold War Era resources (1945 through 1991), Brooks AFB, Bexar County, TX

The Texas SHPO concurs that the 178 properties surveyed are **NOT ELIGIBLE** for listing in the National Register of Historic Places for their associations with the Cold War. Properties within the USAFSAM-100 area and the supporting Veterinarian Services Colony, however, may be **eligible** for listing in the National Register of Historic Places as a discontinuous district directly associated with the "Man in Space" program, contexts for which have been established by the National Park Service. If you have any questions concerning our review or if we can be of further assistance, contact Gregory Smith at 512/463-6013.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas.

Sincerely,

Gregory W. Smith, Historian  
for F. Lawrence Oaks, SHPO



TEXAS  
HISTORICAL  
COMMISSION

George W. Bush • Governor  
John L. Nau, III • Chairman  
Curtis Tunnell • Executive Director

*The State Agency for Historic Preservation*

DEPARTMENT OF ANTIQUITIES PROTECTION  
and  
DEPARTMENT OF ARCHITECTURE  
and  
NATIONAL REGISTER DEPARTMENT

July 8, 1995

Robert M. Hudson, Colonel, USAF  
Headquarters 70th Air Base Group (AFMC)  
Department of the Air Force  
70 ABG/CC  
3203 2nd Street Suite 1  
Brooks AFB, TX 78235-5304

Re: Final Historic Preservation Plan for Brooks Air Force Base, San Antonio, Bexar County, TX  
(Air Force, F1, D2, N1, F3, D3, N3)

Dear Colonel Hudson:

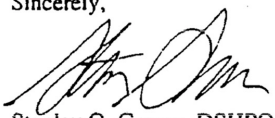
Thank you for submitting the final Historic Preservation Plan (HPP) for Brooks Air Force Base. The Department of Antiquities Protection reviews archeological properties; the National Register Department reviews National Register eligibility of buildings, structures, objects, and districts, while the Department of Architecture reviews effects on eligible properties.

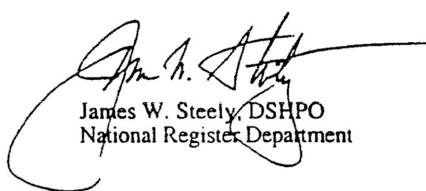
In general, it is our opinion that the Historic Preservation Plan is appropriate and thoughtful. We accept it as evidence of compliance with provisions of the National Historic Preservation Act of 1966, as amended (NHPA). The plan will undoubtedly prove to be a valuable tool for historic properties management. We look forward to working with Brooks AFB to meet other stated goals and responsibilities of the NHPA.

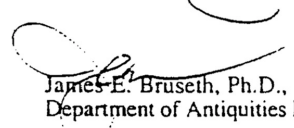
If you have any questions regarding archaeology, please contact Dan Potter at (512) 463-5865. Questions related to the eligibility of structure or objects should be directed to Amy Dase at (512) 463-5942, and inquiries related to mitigation of structures should be directed to Sharon Fleming at (512) 463-6268.

Thank you for your interest in the cultural heritage of Texas, and for your compliance with this federal review process.

Sincerely,

  
Stanley O. Graves, DSHPO  
Department of Architecture

  
James W. Steely, DSHPO  
National Register Department

  
James E. Bruseth, Ph.D., DSHPO  
Department of Antiquities Protection

cc Dan Potter, THC Department of Antiquities Protection  
Amy Dase, THC National Register Department  
Richard Waldman, Base Cultural Resources Officer, Brooks AFB

P.O. Box 12276 • Austin, TX 78711-2276 • 512/463-6100 • Fax 512/475-4872 • TDD 1-800-735-2989



**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS 311TH HUMAN SYSTEMS WING (AFMC)**  
**BROOKS AIR FORCE BASE TEXAS**

04 AUG 2000

311 HSW/EM  
8103 9<sup>th</sup> Street  
Brooks AFB TX 78235-5355

Mr. F. Lawrence Oaks, SHPO  
Texas Historical Commission  
P.O. Box 12276  
Austin, Texas 78711-2276

Dear Mr. Oaks

The Air Force is in the process of preparing an Environmental Impact Statement (EIS) for the Brooks City Base Project (BCBP) at Brooks Air Force Base, Texas. The EIS will analyze the Proposed Action (transfer of Brooks AFB to non-federal ownership) and two alternatives: (1) retention of ownership of Brooks AFB by the Air Force and the outgranting (e.g., lease) of parcels, property, or infrastructure to non-federal entities and (2) the No Action Alternative. The Notice of Intent (NOI) to prepare the EIS was published in the 16 June 2000, Federal Register and a Public Scoping meeting was held on 12 July 2000, in San Antonio.

The current status of cultural resources at Brooks AFB is as follows:

- The entirety of the installation has been surveyed for prehistoric and historic archaeological resources and found to be essentially devoid of them (Geomarine 1995). The installation is heavily disturbed from previous construction and operational use and there is low probability for unexpected discoveries. Your office has concurred with these findings and indicated that no further archaeological investigations are required. Because of the degree of disturbance, the probability for traditional cultural properties is low as well.
- Building 671 (Hangar No. 9), was listed in the National Register in 1970 and was designated a National Historic Landmark in 1974.
- Buildings 538 (Air Base Group Headquarters) and 1176 (Armory), have been determined eligible for listing in the National Register by your office.
- A Cold War-era historic building inventory and evaluation was completed in 1998 (Earth Tech, Inc. and Planning Consultants Research 1998). With your concurrence, none of the 178 Cold War-era facilities evaluated were determined to be eligible for listing in the National Register.



- A historic building evaluation, under the Man in Space historic context, is currently in progress for the U.S. Air Force School of Aerospace Medicine –100 series buildings area and the Veterinarian Sciences Support Colony. A draft copy of this evaluation will be provided to your office for review and any comments upon completion.

Both the transfer and outgrant of Brooks AFB have the potential to affect historic properties that have been identified, or may be identified through the Man in Space evaluation. Therefore, in accordance with 36 Code of Federal Regulations, Part 800.3, the Air Force is herein initiating consultation with your office so as to incorporate the Section 106 process as early as possible into EIS planning. Our intent is to ensure that historic properties are appropriately identified and considered during the BCBP EIS process and to solicit any comments or questions that you might have at this stage of the EIS preparation.

Comments or questions may be directed to Mr. Jonathan D. Farthing, HQ AFCEE/ECA, 3207 North Road, Brooks AFB TX 78235-5363, (210) 536-3668.

Sincerely



ARTHUR W. HATFIELD  
Director, Environmental Management

ccC:  
311 ABG/CE  
HQ AFCEE/ECA